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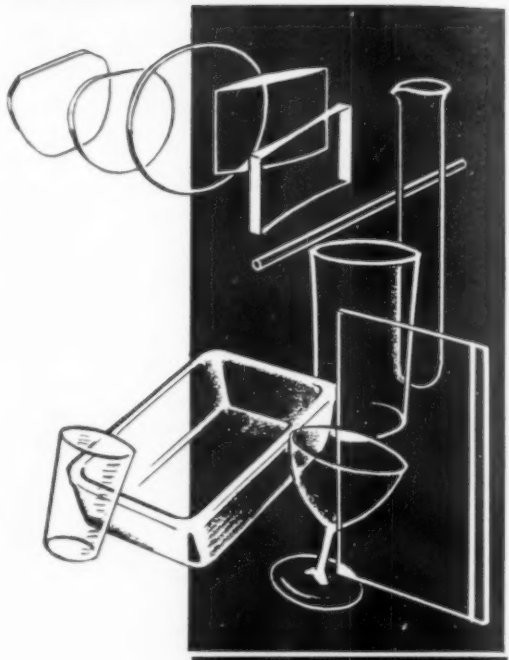

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Why not remember to mention THE AMERICAN CITY?

More Federal Aid Essential

$2,340,000,000 Additional Work Funds Urged by Mayors

TO the Federal executive budget item of $1,102,824,632 for recovery and relief—for the coming fiscal year—an amount which President Roosevelt intimated in his budget message of January 6 would have to be substantially increased—the Executive Committee of the United States Conference of Mayors would add $2,340,000,000. In a statement submitted on January 13 to Vice-President John N. Garner as President of the Senate and to Congressman Joseph W. Byrne as Speaker of the House, the Committee said:

"Now that Congress is in session and consideration will soon be given to the Federal work relief program for the fiscal year 1936-1937, the United States Conference of Mayors believes it essential that the facts regarding the present relief problem be frankly stated and squarely faced. As the Executive Committee of the elected representatives of the people of the larger metropolitan areas throughout the nation (in which the bulk of unemployment exists), we are of the unanimous opinion that this Congress should place the work relief program on a planned and adequate basis for the next fiscal period of the Federal Government. In a spirit of helpfulness and cooperation with the National Government, there is presented herewith, after careful studies and surveys, the chief points which must be considered in meeting this national problem. These recommendations are based on the resolutions adopted at the Annual Conference of the Conference of Mayors held last November.

Historical Background

"In September of 1934, this Committee presented to the President of the United States at Hyde Park what was at that time a new approach to the relief and welfare responsibilities of the nation and of the cities, counties and states. It was then proposed that the Federal Government assume responsibility for the so-called "employable" persons on the relief rolls, and that in turn the cities, counties and states should assume complete responsibility for the unemployable group. On January 4, 1935, the President proposed a plan to Congress based on this division of responsibility estimating that there were approximately 3,500,000 persons on the relief rolls who were employable and who should be given jobs instead of direct relief on a Federal Work Program. The Congress of the United States later appropriated the sum of 4 billion 880 million dollars to carry out this program. It is notable that as a result of passage of that measure by Congress, the Federal Government has substituted work for the dole and has accepted and assumed definite responsibility for part of the employable relief load of the country.

Extent of Present Program

"As of last December 28, the most recent date for which authoritative data are available, there were 3,508,813 persons being given employment in the United States under the 4 billion 880 million dollar law. This employment was divided as follows:

Number of Persons Employed	
Work Progress Administration.....	2,755,639
Emergency Conservation Work.....	509,850
Other agencies	243,324
Total	3,508,813

"The above table indicates that, aside from the CCC enrollment, the bulk of employment is being given by the WPA.

"While the goal of 3½ million employed persons has thus been attained, it should be pointed out that a more exact figure of persons taken from the relief rolls under the present work program would be 3,200,000, since there were at least 300,000 enrollments already in the CCC camps at the time the program got under way—and most of these were non-relief cases. Also, even enrollments from relief families in the CCC do not necessarily remove the family from the relief rolls. Further, there are other persons working on various projects (Housing, PWA, etc.) who did not come from the relief rolls.

"We assume that there are sufficient funds to carry forward the program, as it is now operating, to June 30 of this year.

The Problems of the States and Cities

"The serious problem confronting the cities, counties and states, now that the Government has embarked on a policy of discontinuing direct relief grants, is that of providing adequately for the relief population not cared for under the Federal Work Program. In this category, we find that the existing city, county and state relief load can be fairly estimated at two million cases, embracing between seven and nine million persons. The reports made to us indicate, however, that of this load there are at least *500,000 employable cases, involving close to two million persons, who have not yet been and will not be absorbed by the present WPA, CCC, PWA or other activities.* Our reports conclusively indicate that it is an impossibility for the cities, counties and states to carry this 500,000 load of employable relief cases in addition to meeting the full and complete costs for care of the unemployable group. And to this burden there must also be added about 22 per cent of the cost of the WPA program, which is the national average of city contributions.

"Our figure of 500,000 employable persons still on the relief rolls is a conservative one. In May of 1934, at which time a thorough FERA census was made, there were 4,111,278 employable cases listed. On October 21 last, 3,652,809 people had actually been certified for employment and at that time the certification count was not complete. And further, the May, 1934, census was taken at a time when seasonal employment was at a high point and when relief rolls were somewhat decreased.

"With a present net of 3,200,000 employable relief persons now working, our estimate is substantiated by facts collected by the Federal Government.

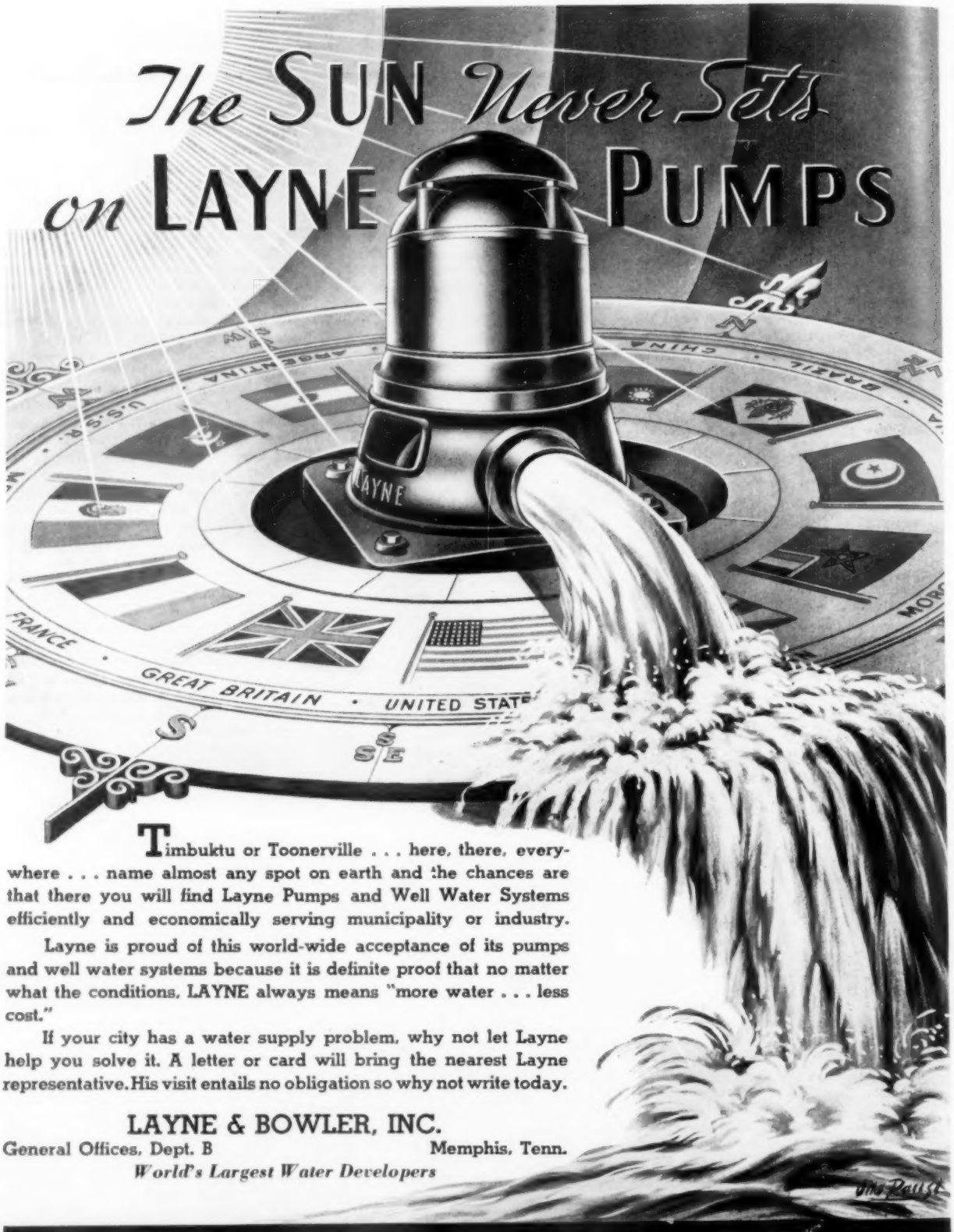
"Having in mind the above picture of the relief situation, the Conference of Mayors proposed a definite program to be followed in making appropriations for the next fiscal period. Assuming (1) that the funds for the CCC and PWA included in the regular budget will be provided, (2) that carry-over of present funds other than WPA will keep some people working during 1936-1937, and (3) that private industry will continue to absorb additional persons from the relief rolls—assuming all these, we are of the unanimous opinion that it is essential for WPA to be given sufficient funds to provide work for at least *3 million bona fide employable relief cases which would take care of 12 million men, women and children.* To do this, approximately 2 billion 340 million is required if the Federal Government's responsibility is to be properly and fairly met. This is a minimum figure of funds needed and for which Federal aid is required if a critical situation is to be avoided."

For a Permanent National Planning Board

READERS of The American City who recognized the present and potential value, to local and state planning, of the activities by the National Resources Committee, will doubtless wish to lend their support to the Copeland bill, now before Congress, for the creation of a permanent National Planning Board. Under the terms of this bill:

"Sec. 4. The Board is authorized (a) to investigate, examine, study, analyze, assemble, and coordinate, and periodically to review and revise, basic information and materials appropriate to plans or planning policies for the conservation and development of the natural, human, and other resources of the nation, and on the basis thereof to initiate and propose in an advisory capacity such plans and planning policies; (b) to consult with, cooperate and participate in the work of any existing or future agencies of the Federal Government and of any state of local government, as well as with any public or private planning or research agencies and institutions; (c) to prepare and submit studies, reports, and recommendations upon matters within its jurisdiction under this Act whenever the President may request a study, report, or recommendation from the Board upon any such matter; and (d) to set up a special advisory council and to constitute such other agencies as the Board my deem necessary or appropriate to assist in the carrying out of its work."

The SUN Never Sets on LAYNE PUMPS



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Our Municipal Notebook

Municipal Power Costs

IN any statement of the cost of municipal power it is highly desirable to include *all* the costs. In addition to operating expenses, these include interest charges and overhead and, in certain instances, depreciation. Another good figure to mention, though not to include in the formal statement, is what the tax would be if the plant were owned by a private utility. When all the figures have been given, the only thing that can be said is, "The plant is losing money," or "The plant is earning a surplus." But when one or more of the costs is omitted, it is sometimes said, "That's typical of municipal operation; always concealing something, trying to put over something, creating a false impression." Give all the facts. If your electric plant is paying all expenses, that fact should be made known. If it is not paying all expenses, that fact should be made known and the whys and wherefores thereof, so that cities contemplating municipal electric operation will know truly what to expect. After all, if a municipal plant is not making expenses, it must be either that certain costs are too high or the rates are too low. Determined officials can usually remedy either situation.

*Business Machines**

THE way business machines are being talked about and installed these days for bill receipting, tax accounting, calculating, dictating and typing by electricity, it is a wonder that there are many employees left or, at least, that there remains very much work for them to do. Extensive and radical systems have been put in, but with no reports of serious displacements of personnel. How can this be, when similar improvements in the office routine of private corporations not only result in lay-offs but are made with that very purpose in view? One answer is that the public official having the courage, energy and modern viewpoint to overhaul a time-honored system involving hand-kept books and home-made forms and to replace it with new ideas, cards, loose-leaves, and electrically operated machines, is likely also to possess the ability to make still better use of the employees no longer enslaved by pen and ink.

When Newark installed its mechanical method of keeping assessment and collection records, the word went forth that the assessors, long tied down to the drudgery of maintaining hand records, could now do assessing, much to their satisfaction. This has been the general experience also at Irvington, N. J., where a similar system was installed and seven new people added to the payroll. In both cities the idea was not to substitute gadgets for hands, but to collect taxes and stop arrears from piling up. This called for the performance of a great deal more work than formerly, but which modern machines rendered it possible to perform without prohibitive increases in personnel.

Thus a dash of salesmanship has been added to the ancient routine of taxing, and good-looking bills and letters are the vogue. Where the mimeograph is used, the electrically operated typewriter will cut a stencil of perfect uniformity no matter how erratic the touch on the keys. As the value of time as man's sole possession becomes increasingly recognized, it is increasingly employed to better advantage, as when he dictates to a device. That is what all these inventions and improvements are for.

* See pp. 538-542, The Municipal Index, 1936, for a comprehensive survey of business machines used by 384 cities.

The Bus and the Trolley Car

A. H. SMITH, Transportation Manager of the Interstate Power Co. of Dubuque, Iowa, sums up, in *Mass Transportation*, the advantages of the bus. Here they are:

Lower maintenance costs.

Less criticism and better public relations.

Elimination of noise with more riding comfort and appeal.

Reduction in hazard of boarding and alighting in the street.

We now can load and unload at the curb line, and street traffic is not blocked.

Faster service—eliminating the waiting in switches.

Flexibility of the bus to dodge traffic jams, fire blockades, street construction work or any occasion diverting traffic.

Position of bus in the street permits faster-moving vehicles to pass more conveniently.

Few accidents due to ability of bus to stop quicker and turn out.

Less hazard in operation due to only seasonable slippery streets as compared to unseasonable slippery rails.

Fewer possibilities of bus getting out of control on grades.

Better operation in heavy snowstorms and snow removal unnecessary.

He then makes this exceedingly interesting observation: "However, the substitution of busses did not come about to secure the advantages enumerated above; the real purpose was lack of revenue to meet a high operating cost." Yes, scholars, this is an economic age. It is fortunate that in attaining greater economy, all sorts of other blessings are frequently conferred. Between the bus and the trolley car is that important economic vehicle known as the trolley bus. Why city officials should care about it was presented on page 50 of the January issue.

Essential Jobs Once

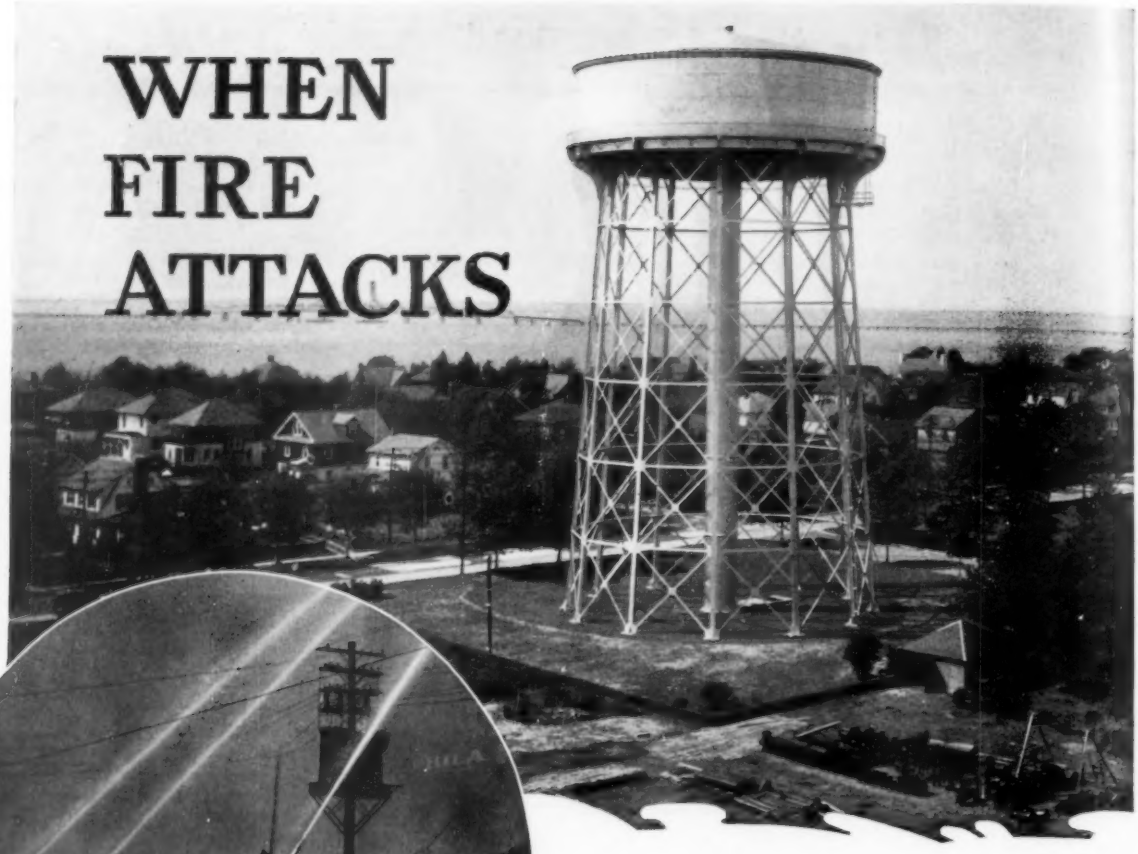
MANY extraordinary entries appear in a list of office-holders on the payrolls of English municipalities in 1835, as recorded in the new book, "A Century of Municipal Progress," reviewed on page 93 of the December isue. As enumerated by Sir Josiah Stamp, in his chapter on "The Finance of Municipal Government," these jobs included, among others, those of ale connor, aulneger, ballast assessor, bellman, beadle, blower of burghmote horn, borsholder, claviger, cleaner of chandelier, cleaner of flags, clerk of the market, clerk of the peace, dragon bearer, egg collector, flesh and fish looker, free suitor, grassman, hedge looker, hogdriver, leave looker, market sayer, minstrel, mole catcher, moor grieve, murager, murenger, sampleman, sergeant at mace, shamble warden, swanner, whiffler, wood and chimney searcher, and the yeoman of the pentice court.

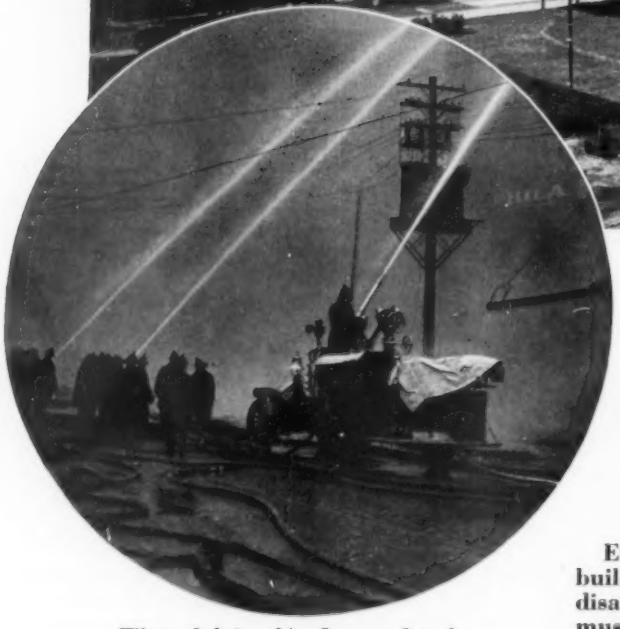
As Sir Josiah point out, "all alike no doubt came down from antiquity. Doubtless some one today is doing their duties under another title."

Nine Years to Sign a Year's Checks

THE most remarkable thing about business machines for saving time, labor, and to increase output, results and personal satisfaction, is that they are not used universally by municipal officials. They are a tremendous help to the easy-going official and an equally great accelerator to the achievements of the busy and ambitious town executive. Take the single item of signing checks. The municipalities of the country issue some 96,000,000 checks annually. At 8 seconds per signature, it takes about 9 years of 8-hour days 300 to the year, to perform this one essential job. But it is not essential that the job be performed by hand. Many cities use check writers, and signers, and thereby permit their higher-paid officials to apply their powers to the solution of those problems for which they were elected and appointed. Using these modern aids that a country bank regards as a matter of course, gets these 96,000,000 checks signed in one month as against 8.88 years by the obsolete hand method.

WHEN FIRE ATTACKS





When fighting big fires, a fire department may require large amounts of water for a period of several hours' duration. Elevated storage will supply heavy drafts until pumping rates can be increased.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2127 Old Colony Bldg.
New York.....3308-165 Broadway Bldg.
Cleveland.....2236 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia...1616-1700 Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Dallas Athletic Club Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Los Angeles.....1403 Wm. Fox Bldg.
Tulsa.....1625 Thompson Bldg.

Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PA.

can your WATER SYSTEM cope with it?

Every time a fire breaks out, it threatens to destroy a building—an entire block—or even an entire city. If disastrous fires are to be averted, your fire department must have plenty of water at sufficient pressure at any time of day or night to meet the emergency.

As a part of a municipal water system, elevated water storage provides a reserve under gravity pressure at all times. Even if the demand for fire fighting should exceed the maximum pumping rate at times, the elevated storage will take care of the difference and, at the same time, maintain service throughout the distribution system.

In addition to adequate fire protection, operating costs are reduced with elevated storage because pumps can be operated at that uniform rate which gives the highest efficiency. It is also possible, in some systems, to take advantage of lower power rates by pumping a large portion of the water requirements into storage late at night.

We shall be glad to cooperate with city officials and waterworks engineers by supplying information and estimating data on elevated storage tanks to provide adequate fire protection. Please address nearest office.

Water Sources, Demands and Revenue

Water Department Helps Pay City's Way

THE net income or profit of the Water Department of Dubuque, Iowa, for the fiscal year of 1934-35 was $38,201.22, or about 3 per cent of the total investment. This current profit was used to extend mains, improve the artesian well supply, rebuild the Level Pumping Station, and install a 2,000,000-gallon gasoline pump, as a standby to service the high-pressure mains. The sum of $32,400 was transferred to the sinking-fund to pay the interest and principal on the outstanding debt and to build a reserve, so that when the Water Department bonded debt matures, there will be sufficient cash in the sinking-fund to meet all obligations.

The net value of the water plant to the city of Dubuque is $1,592,404.60, which proves that this utility has grown to be a valuable asset to the taxpayers. The net income for the fiscal year was $5,150.34 greater than the previous year. This was due to the dry weather during the early summer. The total revenue increased $11,712.25, and the expenses were $6,561.91 greater.

The Water Department does not receive any tax levy or hydrant rental, and furnishes free to the city of Dubuque all water used by the Street, Sewer, Recreation and Fire Departments, and free water to all city buildings. This is an annual saving of about $45,000 to the taxpayers. The Water Department has assumed 20 per cent of the City Manager's, City Auditor's and City Treasurer's salaries since April 1, 1934.

—From the Thirty-Fifth Annual Report of the Water Department, Dubuque, Iowa.

Silt, Not Water, Often Fills Lakes and Reservoirs

CITY people as well as farmers lose from soil erosion. Uncontrolled water not only removes tons of valuable topsoil from farms each year but puts this soil into lakes and reservoirs used for water and power supplies. Many such reservoirs, built usually at high cost, in a few years will be filled with silt, rather than water, according to studies by the Soil Conservation Service of the United States Department of Agriculture.

This washing of topsoil usually is due to bad grazing, farming, and forestry practices in the watershed contributing to the reservoir—practices which have removed a vegetative cover and induced gullying and sheet erosion.

The Soil Conservation Survey gives these examples of man-made lakes which are rapidly filling: the Rogers reservoir at Rogers, Texas, in twelve years has lost nearly one-fourth its storage capacity because of silting. Lake Waco, at Waco, Texas, in five years has lost more than 12 per cent of its capacity. The reservoir at Spartansburg, S. C., in eight years has lost more than 17 per cent of its capacity. The efficiency of the Great Morgan Falls reservoir near Atlanta "has been practically ruined due to the collection of silt and clay above the dam. Only the stream channel is open." The huge San Carlos reservoir on the Gila River in Arizona in a little more than six years has lost nearly 3 per cent of its storage room.

Terracing, contour farming, strip cropping, gully control, more grass crops, and the planting of over-steep lands to permanent grass or tree crops, retard erosion and will retain most of the silt now filling reservoirs, say soil conservation workers.

Air Conditioning—the New Demand on Water Supplies

IT has always been the policy of municipal water departments to give the public all the water they could reasonably use and pay for, but it is a question whether the time is now approaching when it will be necessary to place a limit on consumption. The amount of water for actual personal uses is small, but for domestic use to make the house habitable, for culinary use and for laundry, the amount is greater; then this total is doubled for lawn sprinkling, watering highways, flushing water mains and sewers, fire fighting and similar uses, which are, of course, for the health and safety of the individual.

The threat of greatly increased consumption which hangs over the heads of water officials lies in the demand for air conditioning. The growth of this industry has been phenomenal. It is comparatively new, but the 1934 total installation-sales dollar value of air-conditioning equipment doubled that of 1933, and 1935 has doubled 1934.

Inasmuch as a vast majority of air-conditioning systems have water-cooled condensers, and the salesman or installing contractor, in order to save the cost of a water-cooling tower, pumps, etc., and therefore make the initial price more attractive to the customer, will sell his plant for direct use of raw water wasted to the sewer, and this means a prospective vast usage of water.

A small residential plant capable of cooling and air-conditioning one large or two small rooms will consume more than 4,500 gallons per day. A corner grocery, a beauty parlor, or a small moving-picture house will use some 30,000 gallons, and applications have been recently made in Washington, D. C., for two systems each of which would use water at the rate of a quarter-million gallons daily.

Air-conditioning manufacturers tell us that they are just getting started, that the day will come within a few years when it will not be possible to sell or rent an urban dwelling unless it be air-conditioned completely. These manufacturers are all increasing their plants. They are holding schools for salesmen and telling them to go out and sell, basing their figures on the much lower priced water-cooling systems, offering low down payments and long terms under their special finance plans.

Watch increased water consumption, check your sources of supply, and give serious thought to a proper balance for the future.

—From a paper by A. R. McGONEGAL, Chief Plumbing Inspector, Washington, D. C., presented before the Maryland-Delaware Water and Sewerage Association.

County-wide Ground-Water Resources Survey

WHAT is believed to be the first and most exhaustive survey of an entire county's underground water resources has been completed by the Monroe County, N. Y., Regional Planning Board. The report comprises 134 mimeographed pages of text and 62 pages of charts, graphs and maps. Early in 1934 the basic data which had been collected in the vicinity of East Rochester up to that time were made available to the engineer of that village, so that it was of practical value in determining the location of an adequate ground-water supply for East Rochester, which is now operating its own public water-supply system.

This village is the largest in Monroe County, with a 1930 census population of 6,627. For several years past the village was supplied with water from the Rochester and Lake Ontario Water Co. to a standpipe on Cobbs Hill in Rochester. Water is distributed in 6- and 8-inch mains to 140 hydrants and 1,500 taps. The average daily consumption is 300,000 gallons. A franchise with the Water Company expired August 1, 1935.

In an effort to establish an independent municipal system in East Rochester, a PWA project was instituted in the summer of 1934 and has been completed. During the summer of 1933, three test wells were made as part of the Monroe County water-resources survey on the south side of the village in an attempt to find a suitable well site. The first well was 125 feet deep, drilled through sand and clay. Gravel was found to be present 25 feet under ground, 405 feet above sea level. This well pumped 150 gallons per minute. The second well was sunk 193 feet through sand, clay and gravel, the gravel being found 105 feet below the surface. Water was struck 12 feet beneath the surface, or 398 feet above sea level. This well was pumped at the rate of 600 gallons per minute. Striking gravel 115 feet below the surface, the driller sunk the third test well 181.5 feet. He found that water existed 12 feet beneath the earth surface. This well pumped 500 gallons per minute.

The contract for the new water supply included the drilling of two permanent underground filter well units, and furnishing and installing permanent pumping equipment with a guaranteed capacity of 700 gallons a minute each.

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Street Maintenance and Alley Paving

Gloversville, N. Y.

THE streets of Gloversville are in very good condition. They are maintained with the regular street force at the present time in exactly the same manner as before the days of depression. Only regular city forces are used, with no relief labor. Our plans for 1936 include one rather large repairing job, and the remainder straight maintenance.

H. J. HANMER,
City Engineer.

Aberdeen, Wash.

OUR streets are in fair condition. The gravel and concrete surfaces are good, but the asphalt surfaces are badly pitted in some sections. We have been very limited in our funds for upkeep, but with such aid as we have received from CWA, FERA and other alphabets, we have managed to get along fairly well.

We were unable to obtain any new equipment until 1935, when we did obtain a new grader. We have had to operate with the old equipment as best we could. Our asphalt repair plants are not in good condition, but we patch them up and continue patching the streets.

For 1936 we have a better outlook, more funds are available, and through WPA and other funds we shall be able to resurface some of the streets in worst condition, and in general will be in a better condition to carry on.

S. C. WATKINS,
City Engineer.

Winchester, Va.

BY the use of asphalt cutback and stone chips applied by relief labor we have been able to resurface our streets at a cost of about 2.75 cents per square yard. The relief labor is supervised by our regular forces.

The plans for 1936 call for the use of a pre-mix or mixed-in-place asphalt for maintenance and resurfacing projects.

J. R. BRANDON,
City Engineer.

El Dorado, Kans.

THE streets of El Dorado are not in very good condition. We have quite a lot of asphaltic concrete paved streets which need resurfacing. These streets have been patched with material made of a mixture of Amulco asphalt, chat and sand. The work has been done with our regular street force, and we have used no relief labor on our streets.

Our plans for 1936 are to do as we have been doing during the last three or four years. We will patch the holes as they appear, and will not attempt to resurface any pavements unless the property owners are willing to stand their share of the cost.

F. E. SCHIDE,
City Manager.

Laramie, Wyo.

THE city streets are in excellent shape owing to high-grade initial design and construction. Repairs to pavements and to the armor-coated streets is done by the regular forces. Our surfaced streets consist of 41,000 square yards of asphaltic concrete, 55,000 square yards of bituminous macadam, and 350,000 square yards of asphaltic armor-coating on a waterbound macadam.

ELMER K. NELSON,
City Engineer.

Portsmouth, Ohio

THE streets and alleys of Portsmouth will be in first-class condition after the present WPA program is completed. Under CWA the city re-laid approximately 100,000 square yards of paving. The remainder of the paving and resurfacing in the city will be taken care of under the WPA projects which have recently been released.

The city has always maintained a small crew to take care of regular routine patching of street openings, financed by the gas tax. The cost is charged back to the various utilities.

CHARLES S. STEVENSON,
City Engineer.

Borough of the Bronx, New York City

THE streets in the borough of the Bronx are in fair condition. This has been made possible by a combination of maintenance funds and WPA money. The work has been performed by the maintenance force, assisted by from three to nine thousand relief workers. As to our plans for 1936, the assumption is that the WPA program will be continued.

ARTHUR V. SHERIDAN,
Chief Engineer.

Akron, Ohio

OUR streets are in good condition, maintained so by the regular crews, with gas tax and automobile license money. Many brick and asphalt streets in Akron are badly worn and cracked or rough. They are being maintained by leveling-up with a cutback mixture, or asphalt emulsion, and stone or slag chips. This work makes a smooth bituminous surface at a cost of about 18 cents per square yard. The work is done entirely with the regular maintenance forces, as the Federal agencies refuse relief labor for maintenance work.

E. A. KEMMLER,
Director of Public Service.

Kansas City, Mo.

THE streets of Kansas City are in good repair. The city does its repair work with its own municipal street crew. Repairs are made mostly with sheet asphalt, except in cases where there is a large area to be repaired, such as trench excavation, then the city uses the same material with which the street was paved. This method will be continued in 1936.

ROBERT W. WADDELL,
City Engineer.

Galveston, Texas

OUR streets are in fair average condition. The budget for street maintenance was pretty close to bedrock, even during the era of prosperity, so that it has remained about the same for labor and material for some time. No new equipment has been purchased for several years, but this handicap has been equalized to some extent by the extra labor furnished under CWA and FERA. As to 1936, we have some WPA applications which may or may not be approved, otherwise we will jog along as before.

W. B. MCGARVEY,
City Engineer.

Alley Paving in Oak Park, Ill.

THE total length of public alleys in the village of Oak Park, Ill., is 50.97 miles, of which 49.24 miles, or 96.61 per cent, is paved. There are 45.70 miles of portland cement concrete paving, 0.33-mile of brick, 0.24-mile of limestone macadam, 2.78 miles of reinforced portland cement concrete, and 0.19-mile of asphaltic concrete paving in these alleys.

Surveys have been made and estimates prepared for the paving of the remaining unpaved alleys within the limits of the village whenever the property owners abutting these alleys request that the improvements be made.

Alley pavements have been cleaned wherever conditions make it necessary. There is little accumulation of dirt on alley pavement surfaces, and as a rule the ordinary rainfall is sufficient to keep them cleaned. Property owners are required to keep all ashes and rubbish on their own premises and not place anything in the alleys. During heavy snowfall, where conditions were such that alleys were impassable, opening was made through the alleys with street snowplows.

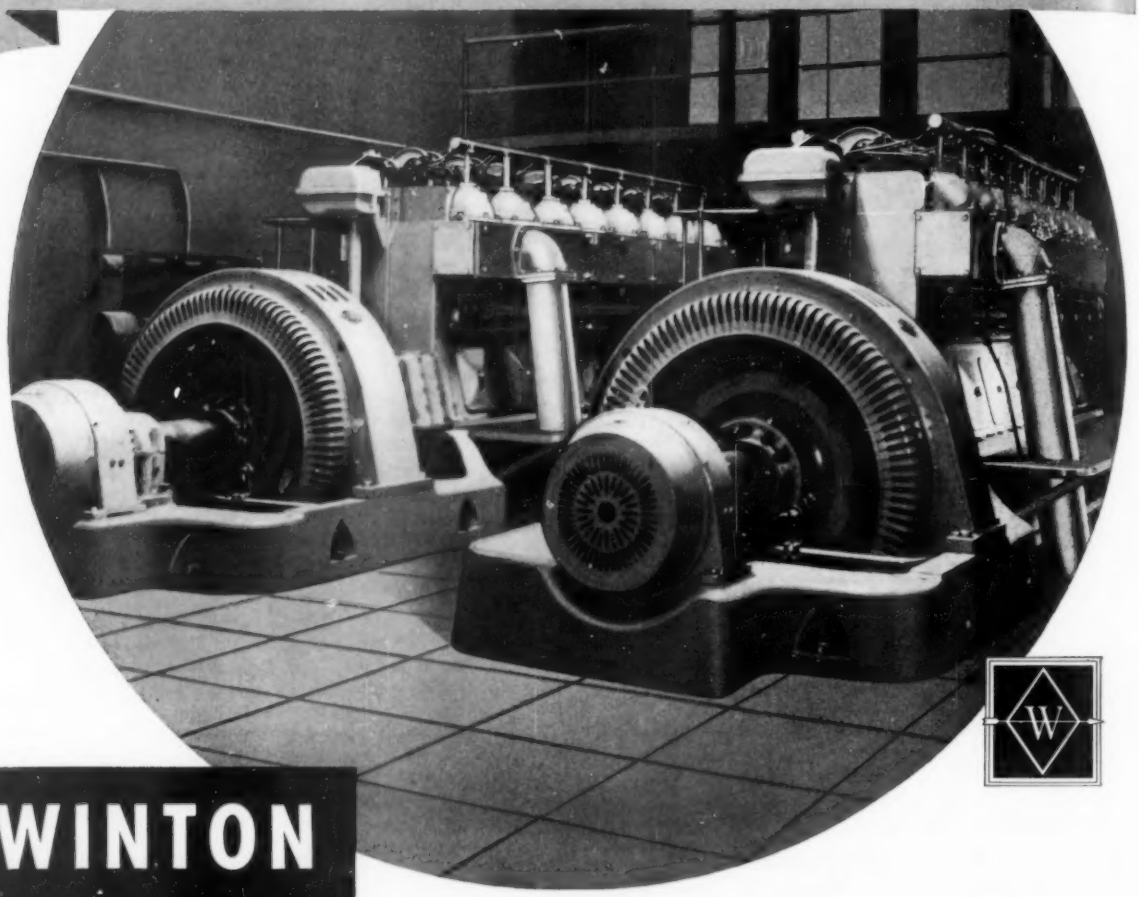
Property owners have been cooperating with the village authorities in the removal of unsightly wooden fences, in providing proper containers for household waste, and in placing house numbers on garage doors. The paving of alleys has promoted the removal of wooden fences and their replacement with link-chain fences or hedges, and also in the landscaping of yards. Many of the alleys might now well be called "lanes."

DUDLEY C. MEYERS,
Commissioner of Public Works.

Read the 1936 Municipal Index

WINTON-DIESEL POWER

Meets the Need in INDUSTRIAL MODERNIZATION



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BECAUSE of their ability to synchronize economical dependability with all around service performance, Winton-Diesel engines are now supplying all necessary power to the Delaware Paper Mills, Inc., Wilmington, Delaware. The installation consists of two eight-cylinder engines, each developing 700 h.p. at 360 r.p.m., 485 k.w. with direct-connected generators and direct-connected exciters. These engines operate all auxiliary equipment such as beaters, grinders, pumps, and other electrical equipment connected with plant operation and furnish current for lighting. They also furnish the major portion of the hot water used for processing. The combined saving in generation and reclamation of cooling water temperatures, makes this a very profitable installation . . . typifying the manner in which Winton-Diesel power meets the need in industrial modernization.

WINTON ENGINE CORPORATION

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Cleaning Streets and Catch-Basins

Minneapolis, Minn.

PAVED streets in the loop and congested area are flushed and also cleaned by hand-broom night crews. All other paved streets are flushed and swept by motor pick-up sweepers. This work is also being done at night. All dirt streets are cleaned by the hand-cleaning method.

We have at the present time six pick-up sweepers, three Elgins and three Austins. We also have three power flushers, one Etnyre with an 1,800-gallon tank, and two Hvass 1,500-gallon tanks mounted on three Wills 5-ton trucks.

Minneapolis has a city ordinance which permits the street-cleaning crews to remove parked cars. The loop district is posted with signs, "One Hour Parking 1 A. M. to 6 P. M.," which tends to keep all-night parkers off the street.

We clean only the grates of the catch-basins; occasionally the bottom is cleaned out by flushing.

ELMER H. LUND,
Street Maintenance Engineer.

Tallahassee, Fla.

TALLAHASSEE streets are kept clean with a motor pick-up sweeper and a man with a push-cart, who works in the business district only. The street sweeper skips places where cars are parked in residential districts, and in the business district also skips places where the cars are parked, but these are cleaned by the man with the push-cart.

Catch-basins are all cleaned by hand.

WILLIAM R. GALT,
City Manager.

Waterloo, Iowa

WE clear the heavy spring débris from the streets with shovels and trucks, followed up by sweepers. We use a power flusher after the sweepers in our business districts. For equipment we have two Elgin motor sweepers and one power flusher, which we have had for several years.

Parked-car grief is not handled very well. Our ordinance is two-hour parking in certain zones, nearly everything being parallel parking, though we have five blocks where diagonal, two-line center parking is used. This is mostly limited to the two-hour parking. Double parking is prohibited, but neither rule is very closely observed, which makes trouble after an enforcement for a day or two by the police force. We have tried shorter lengths of time for parking, but we feel the two-hour time works out best.

Catch-basins are mostly the trap type, and the accumulation of sand, mud and débris is removed by long-handled spoon shovels and hauled away. We clean the basins at least twice a year.

NATHAN B. BARBER,
City Engineer

How Clean Are Your Streets?

What method of street cleaning do you use?
What motor equipment have you?
How do you handle the "parked-car" nuisance?
How do you clean catch-basins?

St. Louis, Mo.

THE streets of St. Louis are flushed by both motor and horse-drawn flushers, with the final clean-up by pick-up crews using brooms and shovels. Alleys are cleaned by sweeping crews, who also work on the unimproved streets.

The automotive equipment in the Street Cleaning Section consists of four Mack 200-gallon motor flushers, six White 2,000-gallon motor flushers, two 2,500-gallon Autocar motor flushers, five Austin motor pick-up sweepers, and forty 1½-ton scoop-end Ford and Chevrolet trucks and Dodge dump-trucks.

The catch-basins are cleaned by two methods, hand cleaning and the use of three Eductors.

FRANK J. MCDEVITT,
Director of Streets and Sewers.

Jamestown, N. Y.

WE clean the business section of the city by hand broom, and flush with a 15,000-gallon motor flusher. The outlying streets are cleaned with the same flusher. The parked-car nuisance is not troublesome in Jamestown.

We clean catch-basins by hand and dispose of the cleanings by a small 1½-ton truck.

LELAND L. GRAHAM,
Director of Public Works.

Danbury, Conn.

STREET cleaning is done by brush and push-cart men and truck pick-up. The business section is cleaned at night. The motor equipment of the Public Works Department consists of three GMC 3-ton dump-body trucks and two Ford ½-ton square-body trucks.

In the business section a one-hour parking rule from 6 A. M. to 8 P. M. with a penalty of $1.00 takes care of the parking difficulties very well indeed. We also have three free parking spaces centrally located, which accommodate 600 cars. There is a plan under consideration, with FERA aid to open another parking space which will handle 475 cars.

The catch-basins are cleaned with an Auto Eductor mounted on a Mack truck.

ELIJAH STURDEVANT,
Superintendent, Public Works and Water Works.

Boston, Mass.

WE keep the streets of Boston cleaned by push-cart patrols, broom gangs, with and without horse-drawn sweepers, motor sweepers, flushing, and catch-all box collection. In this service we use one Perrin Walsh 10-ton trailer, ten 7-ton American LaFrance trucks, twenty-one 7-ton Mack trucks, twenty 7-ton White trucks, one 1½-ton White truck, four Pierce Arrow 5-ton trucks, two Walter 5-ton trucks, two Indiana 5-ton trucks, two 5-ton Mead Morrison tractors, one 5-ton Caterpillar tractor, three 3-ton Brockway trucks, one 3-ton Autocar, two 3-ton Highway trailers, four 3-ton Federal trucks, one 3-ton Sterling truck, three 3-ton, one 2-ton, two 2½-ton Reo trucks, three 2-ton and one 3-ton GMC truck, four 2½-ton Diamond T trucks, fourteen 2½-ton, nine 1½-ton and one 2-ton Ford truck, ten Kinney sweepers, six Elgin sweepers, nineteen Ford coupés, three Ford sedans, one Buick coupé, one Plymouth sedan and one Reo sedan.

We have not been able to solve the parked-car nuisance as yet. In those districts where most trouble is experienced, the work is done at night to minimize the difficulty. In the case of the push-cart patrol, the men go in and get the material whenever a car pulls out from the curb.

Catch-basins are cleaned by the Sewer Division.

ADOLPH J. POST,
Division Engineer, Sanitary Division, Public Works Department.

Dearborn, Mich.

WE use motor pick-up sweepers on all paved streets, supplemented by hand sweepers with push-carts in the business districts. The parked-car nuisance is overcome as far as possible by using the motor sweepers at night.

Catch-basins are cleaned with an Auto Eductor.

D. M. COBURN,
Steet Department.

Norfolk, Va.

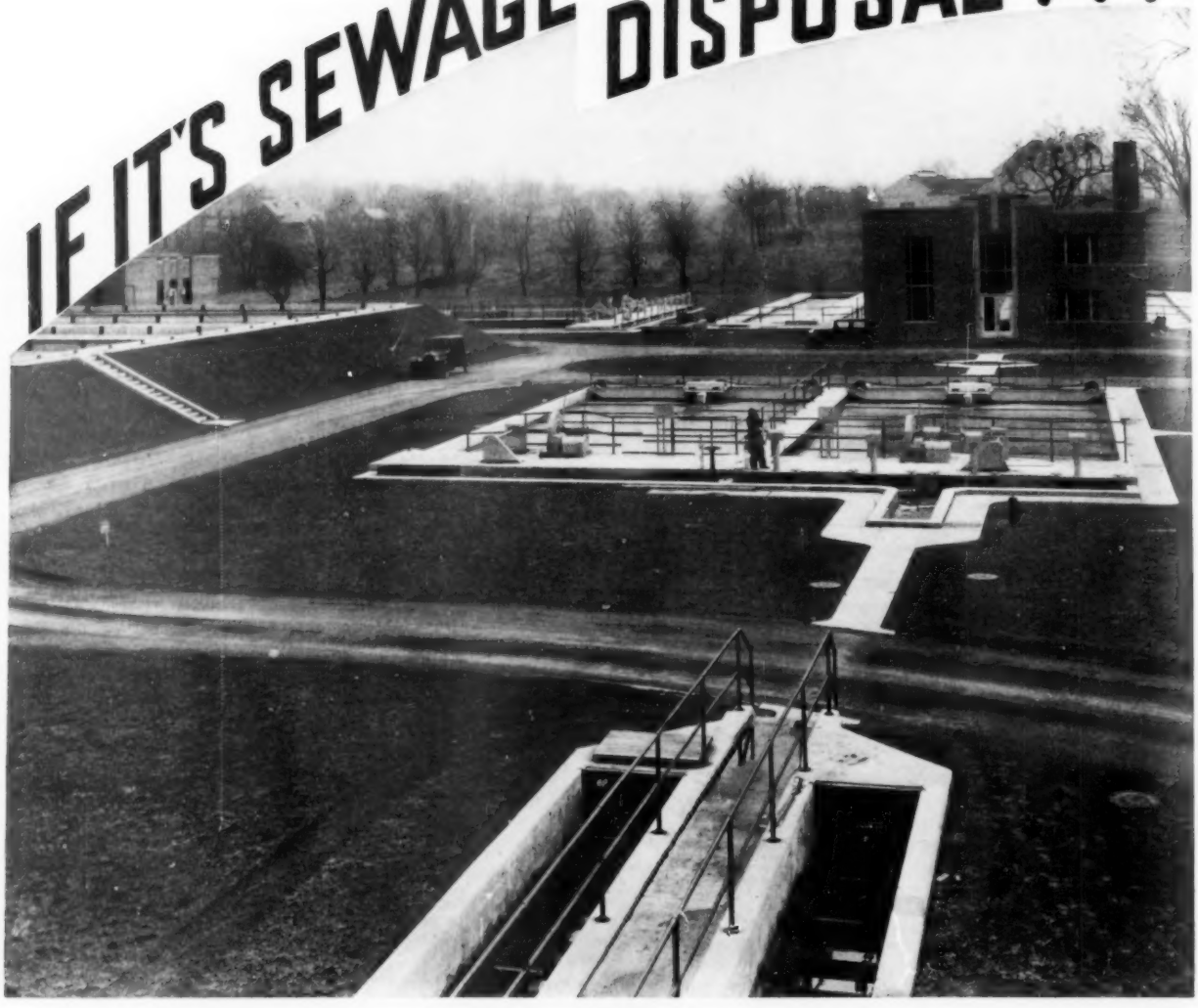
WE have two Model D motor sweepers, which cover an average of 54 curb miles of streets daily. One sweeper covers the business district five nights weekly, while the other sweeper has routes in residential sections semi-weekly. We also have 25 hand sweepers and 12 collecting carts, which cover approximately 55 curb miles of paved streets daily.

The parked-car nuisance is the most serious problem in motor-sweeping operations. We manage to clean more thoroughly with broom men.

Catch-basins are cleaned by the Sewer Department.

C. W. ARMSTRONG,
Superintendent, Division of Street Cleaning.

IF IT'S SEWAGE DISPOSAL . . .



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We are in this business in no haphazard way . . . our Engineers really went into Sewage Disposal . . . made a lengthy study of every conceivable problem before the manufacture of equipment was started.

With nearly 60 years' experience in designing and building material-handling equipment of all kinds to back up this additional experience in sewage disposal, you can place your trust in Jeffrey.

Our Sanitary Engineers have many successful installations to their credit . . . and in every case the Jeffrey equipment is performing its assigned job . . . economically and with trouble-free operation. Call on Jeffrey. Write for our New Catalog No. 615-C.

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When you write for that catalog, kindly mention THE AMERICAN CITY

Sewers — Chemical Treatment of Sewage

Chemical Coagulation Experiments at Grand Rapids Sewage Works

IN 1933 an eight-day trial run of ferric chloride application was made at the sewage treatment works, Grand Rapids, Mich. The chemical was applied to one of the primary settling tanks, and comparisons were made. Further research in chemical precipitation and coagulation was carried on in a pilot plant during 1934 and 1935.

The conclusions arrived at in the 1933 work were:

1. The application of ferric chloride to the Grand Rapids sewage in amounts up to 10 ppm showed an increase in the suspended solids removal and reductions in the B.O.D. and chlorine demand.
2. This effect was more pronounced with sewage at a high solids content than with a low solids content.
3. The percentages of increases in suspended solids removal and reduction in B.O.D. varied over a wide range.
4. During the eight days of ferric chloride treatment, the increase in dry solids removed as sludge was 17.8 per cent.
5. Gas production was not affected by the presence of the iron salt in the quantities added, viz., 5 to 10 ppm.
6. The use of ferric chloride during short periods of the year might be justified if conditions in the stream approach the critical stage.

The conclusions resulting from the 1934 and 1935 experiments are also of interest. Increased removal of solids and increased reduction in chlorine demand were particularly significant in the cost analysis, where their advantages were evaluated in dollars and cents. The increased reduction of B.O.D., though equally as important, cannot be emphasized by monetary evaluation.

Suspended solids removal of 75.8 per cent showed almost 50 per cent improvement over the removal by present operation, which includes primary settling, and reaches within striking distance of suspended solids removal by conventional secondary treatment processes.

Increase in B.O.D. reduction is not as great as would be expected with secondary treatment, but slightly better than 40 per cent improvement is worthy of serious consideration.

By the application of chlorine, complete sterilization is accomplished by maintaining a reasonable residual in the plant effluent. The problem of sterilization is similar in many treatment processes and differs only in the quantity of chlorine necessary to achieve the desired residual.

Conditions in the Grand River are not alarming except at intervals during the summer months when flow and rainfall are far below normal. Stream conditions have been greatly improved. The point at which the stream B.O.D. is satisfied has been brought upstream approximately 5 miles. It is safe to say that an improvement of 40 per cent in B.O.D. reduction by coagulation will materially enhance a further and more rapid recession of this point upstream.

As a result of the experiment, the substitution of a chemical coagulant for secondary treatment is recommended as a happy solution, since the city at a reasonable cost should be able to satisfy state health and conservation authorities for several years to come, or until such time as cities and communities above Grand Rapids take such action in the treatment of their sewage as would warrant secondary treatment at Grand Rapids. In this event the city could incorporate the appurtenances and equipment necessary for chemical application in whatever type of secondary treatment process it may select in the future.

Sewer Records Are Invaluable

A GOOD system of records is invaluable, whether it be for a business, an engineering organization, or any city department. The Sewer Division of the city of Akron, Ohio, has its system of preserving valuable records to hand down to succeeding generations of engineers. Prior to 1918, the Sewer Division records were, in most cases, locked up in some individual's very tricky and at most times fallible mind.

Today, after about seventeen years of diligent, painstaking care, and at times having only one man, with many other duties, to carry on, our records, with few exceptions, are in very good shape. They are in such good condition that any inquiry or complaint can be rapidly checked to determine in a few seconds such information as location, size, depth, and whether sanitary, storm or combined sewers.

To keep the record up to date is a continuous job, involving every type of construction work in the city. Our plats, or tracings, are on a scale of 1 inch to 50 feet, and if they were enlarged to natural scale and spliced together, you would have a map the size of the city and every street and structure shown on the map would match the actual street or structure on the ground. At present there are 815 of these plats. To complete the plats of the city will require about 100 more, all of which are in outlying districts, where there are very few improvements. The standard size is 24 x 34 inches.

Another feature of these records is that in addition to assisting in answering complaints and inquiries, there is valuable information available for the designer, for he has a complete picture of the underground structures as they really exist in the streets adjoining the property he is considering. At the present time an application is pending with WPA authorities for the completion of the underground records, and also for the redrawing of all of the downtown plats to a scale of 1 inch to 20 feet, in order to make them more legible, since there are a great many sewers, gas lines, water lines and other structures in that particular area.

T. P. SHEPHERD,
Division of Sewerage, Department of Public Service.

Chemical Precipitation at Birmingham, Ala.

THE Shades Valley sewage-treatment plant at Birmingham, Ala., is of the chemical precipitation type, with a capacity of 2 mgd for complete chemical treatment, and 4 mgd for primary treatment, using chlorinated copperas as the coagulant. It has been in operation since the summer of 1934.

The plant consists of a flash mixer, flocculator, two settling tanks, a two-stage digestion system, and open sludge-drying beds. The units are so arranged that two basic schemes of operation can be used. In series operation the sewage flows first through one settling tank for preliminary sedimentation, and then through the mixer, flocculator and final settling tank. In the other scheme, parallel operation, the sewage flows first into the flash mixer and then through the flocculator, from which one-half goes to each settling tank. Chemical sludge, or mixed sludge, can be returned to the raw sewage in either scheme. Chlorine can be added to either the raw or the settled sewage. For primary treatment only, the mixer and flocculator are simply by-passed.

Ferrous sulfate is added by a dry-feed machine. The discharge line from this machine joins that from the chlorinator about 40 feet from the point of application at the flash mixer. A slight excess of chlorine is added at all times for sterilization and as a factor of safety against incomplete oxidation of the ferrous iron.

On June 1, 1935, chemical operation was started for the current year and has been continuous to date. The average operating results for this period show a 93 per cent reduction in suspended solids and an 85 per cent reduction in B.O.D.

The condition of the receiving stream has been materially improved, and the general results obtained at this installation have justified the selection of the chemical treatment process.

—From a paper, "Chemical Precipitation Plant at Birmingham, Ala.," by H. H. Hendon, Sanitary Engineer, Jefferson County, Birmingham, Ala., published in *Civil Engineering* for December, 1935, page 770.

Sewer Rentals

A complete study of state laws and the extent to which advantage has been taken of this method of financing sewer construction and maintenance appears in the 1936 Municipal Index.

PANIC —*The Worst Hazard in Schoolhouse Fires can be* EFFECTIVELY SAFEGUARDED AGAINST

by installing

GAMEWELL

DUALARM

SYSTEMS

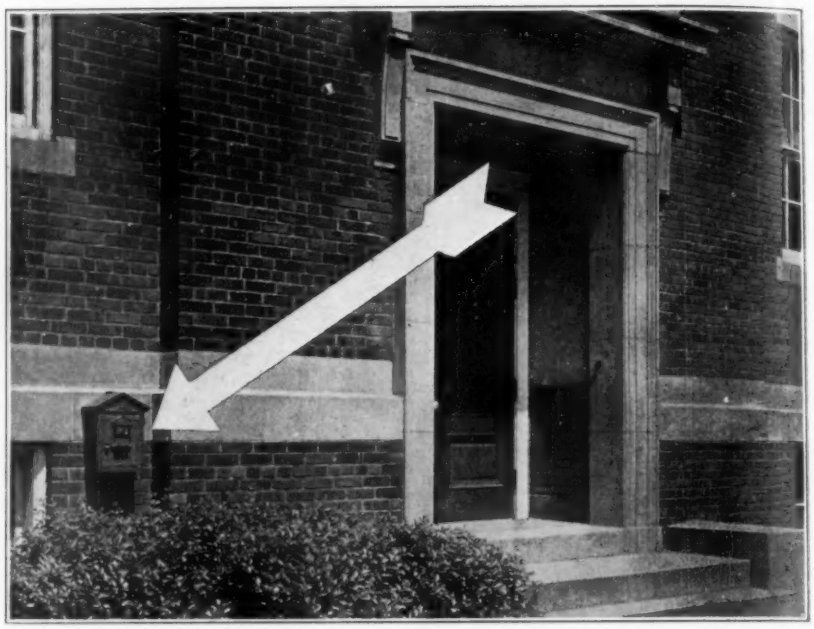


Photo shows how Needham, Massachusetts officials protect their school children. Arrow points to Master Type Fire Alarm Box which automatically calls the municipal fire department directly to the schoolhouse when DUALARM system, inside the building, is operated for fire.

SCHOOL fires of the past have taught a lesson which many fire department and school board officials have failed to heed — a lesson showing the vital need for protection against PANIC in schoolhouse fires.

PANIC has been the grim reaper of school children's and teacher's lives and the wrecker of human bodies in all major schoolhouse disasters of the past. In just six terrible schoolhouse fires, three hundred and fifty-three (353) deaths occurred—and PANIC was the largest contributing factor.

A PANIC is quickly created in a schoolhouse fire — the highly imaginative youthful mind being particularly susceptible to it. A mere wisp of smoke circulating from a small rubbish fire in a basement—a cry of "Fire" from the lips of a frightened child—then instantly, an orderly and happy group is quickly thrown into a turmoil—a stampede for the exits starts, while death and serious injuries follow.

The Gamewell *Dualarm*, a specially designed fire alarm system for schools, offers the most effective known protection against PANIC from a fire. It accomplishes the two most important things that should be done when fire is discovered in any school: (1) *Gets the children out safely*, (2) *Calls the fire department to the scene quickly and automatically.* The *Dualarm*, low in price, is the most complete and practical fire alarm system for schoolhouses that can be obtained. It requires no local battery that is likely to get out of order, and it costs nothing to maintain. Every fire chief and superintendent of fire alarm should urge his local school officials to install *Dualarm* Systems.

Write for a copy of our catalog leaflet No. 2002AC featuring the Dualarm Systems.

THE GAMEWELL COMPANY

"A Box a Block"

NEWTON, MASSACHUSETTS

Public Safety

Fire Service Needs Modern Equipment and Instruction

THE reduction in fire waste in our cities during the past few years may be at least partially attributed to the advancement made in the application of science to the fire-fighting service. Just as science is aiding the Department of Justice in apprehending and convicting criminals, so is science aiding fire departments in the prevention and extinguishment of fires, in the detection of the fire-bug, and in the saving of lives through modern first-aid treatment.

Much progress has been made in those fire departments having active, progressive and enterprising chiefs in developing new methods and services, and what has been accomplished is only the beginning. There is a great field open to the fire fighters, and all chiefs who have not kept up with the progress had better get into it and see that their fire companies obtain the necessary privileges of instruction and practice.

City officials, too, must awake to the fact that their fire departments need funds for modern equipment and appliances. The old heavy fire truck with two-wheel faulty brakes is dangerous to use in the fast modern traffic of today. Chemicals, gases and explosives are now commonly found in all communities, and not all can be controlled by the old methods of using a stream of water. Chemical fires may have to be fought with chemicals, gas fires by removal of the burning element, or explosives safeguarded by isolation and prevention. A new vapor nozzle has been found effective in controlling certain inflammable liquid fires and for cooling and extinguishing other small fires with less water damage. Modern resuscitating and first-aid equipment are necessities.

Fire departments that are well trained and equipped are becoming greater assets in communities as they gradually take over emergency services such as first-aid, rescue, and life-saving in addition to fire service. Volunteer as well as paid departments are distinguishing themselves in this kind of community service. The public likes this speedy, rough-and-ready service.

H. J. CLARK,
Chief Engineer, Oklahoma Inspection Bureau, Oklahoma City, Okla.

Police Vehicles in Milwaukee

THE facilities of the police radio system, now in its fourth year of operation, were further increased by adding radio-equipped motorcycles, says the 1934 report of the Common Council of Milwaukee. The city was divided into 15 motorcycle districts. With this new setup, in a few minutes many additional men can be concentrated at any point where an emergency arises, the number of radio squad cars increased to 9, in addition to the regular 19 uniform radio squad cars and the special accident-investigation car. The Department has a total of 87 mobile units radio-equipped: 36 cars, 50 motorcycles, and a police boat. The sheriff's department and all the police departments in the county except one have radio-equipped vehicles which may be reached through the facilities of WPDK, insuring complete coverage for the entire county. During 1934 there were 78,691 radio despatches broadcast from the station, which included 48,050 orders to city squad cars and motorcycles, and 12,837 to other mobile units of the county. The city squads and motorcycles made 27,246 runs, and the squads alone made 9,563 arrests for the year.

Radio "Produces" in Oklahoma City

To the Editor of THE AMERICAN CITY:

The personnel of our Police Department consists of 222 employees, which includes radio operators and civilian clerks. We have 40 cars radio-equipped, 20 of them nothing more nor less than a motorized patrol manned by uniformed officers and assigned to districts throughout the city, covering 32 square miles of territory. At present each car is under the command of a Sergeant, who is responsible for the district, his partner, and his car. The entire shift is under the charge of a Lieutenant, responsible to the Deputy Chief during the 8-hour shift.

The other 20 cars are used in the Detective Bureau and also are radio-equipped. When on the streets they follow up emergency calls and back up our scout cars, as well as taking care of all investigations throughout the day that are necessary in police work.

This city is more or less radio-equipped all the way through. All cars and trucks of the Fire Department are radio-equipped and report in and out of service the same as police cars. This has been quite a saving, in that in many cases of fire alarms the fire trucks have not reached the fire or even started across the town when they have been called back into service through the radio. The Water Department, the official Dog Catcher, and others are radio-equipped, and it is not necessary for them to report into the station for calls and assignments, for these are given over the radio.

We have 18 traffic officers on duty at certain corners of the city, and 23 motorcycle officers under the command of a Lieutenant, who in turn is under the Traffic Captain. The motorcycle officers furnish their own equipment, and all their machines are painted white. The city pays them $25 per month for the use of the motorcycles and furnishes gasoline and oil. They work from early morning to 2 A. M. the following day, divided into 8-hour shifts, and also take care of funerals, parades and other special assignments.

New Equipment

In October of last year 20 new Ford V-8 cars were purchased. These cars are used in the Scout Car Division at the present time and are equipped with Philco DP Model radios and mechanical sirens. The Detective Bureau is using mostly Chevrolets and Plymouths. We are expecting to purchase, in the near future, when our budget is released, further new equipment for the Department, replacing the cars now in the Detective Bureau and a few in the scout car service.

The Scout Car Division is divided into three shifts. At all times these men have a more varied work than the average officer, in that they handle traffic, criminal cases, and whatever emergencies may arise in their particular district.

The radio has been a wonderful help to the Department, and our records indicate that it has helped us to lessen crime in this city.

JOHN WATT,
Chief, Police Department, Oklahoma City.

EDITORIAL NOTE.—See The Municipal Index, 1936, pp 455-458, for "Some Facts on the Operation and Results of Police Radio."

Fire Department Activity at Quincy, Mass.

To the Editor of THE AMERICAN CITY:

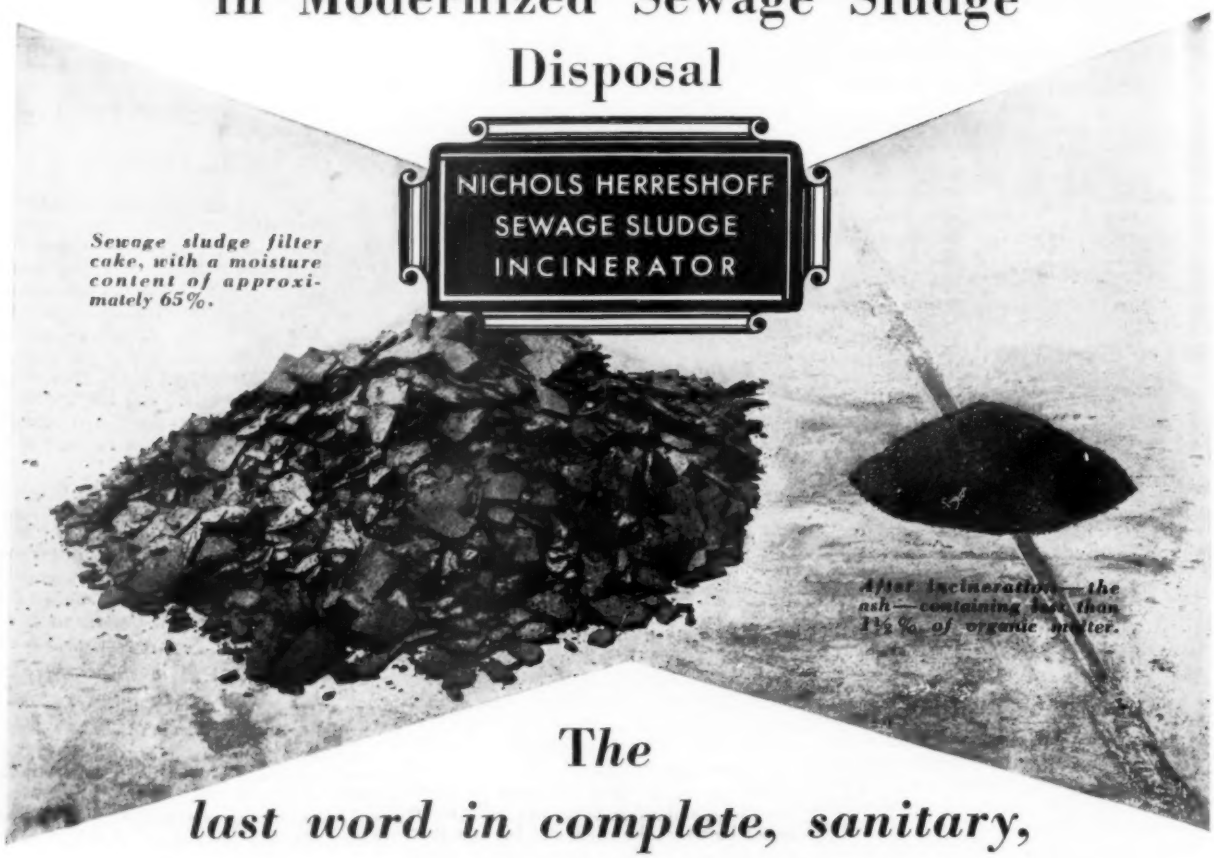
We do not contemplate making any change in our fire-alarm system, as we have a modern manually operated Gamewell system. We also use the teletype for transmitting alarms, being one of the few cities in the country using this system. We have a total of 260 fire-alarm boxes; 83 of these are of the interfering type. Each year the Superintendent of Fire Alarm installs twelve new boxes; six of these are to replace old boxes of the interfering type, and the other six are installed at new locations.

In the Fire Department budget submitted this year, provisions have been made for the purchase of an 85-foot aerial ladder truck and a 1,000-gallon pumping engine. As the budget has not been passed by the City Council, I am not positive as to what new apparatus will be purchased. However, I feel reasonably sure that a pumping engine will be purchased.

With reference to "homemade" apparatus, I am of the opinion that the best apparatus manufactured is none too good for fire departments. I favor the use of the factory-built product, thereby placing the manufacturer responsible for the maximum performance of the apparatus.

WILLIAM J. SANDS,
Chief of Fire Department.

A Notable Engineering Achievement in Modernized Sewage Sludge Disposal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Inquiries are invited from engineers, public officials and others interested in scientific sewage sludge disposal.

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FEBRUARY, 1936

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The American City

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New York

35 Cents, $2 a Year

Low-Cost Housing and Slum Reclamation

Government Aid? or Private Enterprise? or Both?

THE civic, humanitarian and business importance of stimulating, in cities large and small throughout the United States, large-scale low-rent housing developments, with or without simultaneous reclamation of slums or blighted areas, has come to be generally accepted. Governmental concern with this problem is not wholly a New Deal product; for it will be recalled that in the Emergency Relief and Construction Act of 1932, approved by President Hoover in July of that year, the Reconstruction Finance Corporation was authorized and empowered—

"To make loans to corporations formed wholly for the purpose of providing housing for families of low income, or for reconstruction of slum areas, which are regulated by state or municipal law as to rents, charges, capital structure, rate of return, and areas and methods of operation, to aid in financing projects undertaken by such corporations which are self-liquidating in character."

Public interest has been cumulative. Informed opinion agrees that something bigger and better must be done—by government aid or private enterprise, or both—than either the Old Deal or the New Deal has yet produced. To help in crystallizing such opinion as to wise future policies, *The American City* in collaboration with *The Architectural Forum* has been gathering and analyzing, by means of the questionnaire here reproduced, the consensus of a selected list of liberals and conservatives, whose ideas and recommendations ought to have weight. Copies of the questionnaire were mailed in December or early in January to about 500 representatives of housing associations, housing authorities, and housing committees of civic, commercial and welfare organizations; realty and construction interests; state and local planning officials and consultants, political scientists, economists, sociologists, educators, architects, consulting engineers, and others who have shown a special interest in the solution of problems of low-cost housing and slum reclamation.

The Architectural Forum is publishing, in its February number, an eight-page article, with a more thorough editorial analysis of the replies than the space here available will permit. A reprint of that article will be sent by *The American City*, without charge, to any subscriber who may request it.

As the closing date of *The American City* is about two weeks later, the replies here tabulated include 28 received since *The Architectural Forum's* tabulation of 137 replies was made. The totals in the two tabulations differ, therefore, but the percentage variations in answers are slight. In a minority of cases—much too small to affect the preponderance of opinion—qualifying phrases were added to affirmative replies. For example:

Russell Van Nest Black answered, "Yes, *if*" to the three questions in section 1, and added:

"1. If overcrowding is avoided.
"2. If done in accordance with comprehensive plan.
"3. If local financing of public services is properly provided for."

Henry V. Hubbard's reply to question 3 of section 1—whether governmental aid should be given to the development of satellite or "green-belt" communities—was:

"No—except as an experiment in a few instances, and then only with such honest bookkeeping that the results, if desirable, can be checked as to *cost* if repeated by *private* or *public* effort."

And Dr. Edith Elmer Wood, answering the same question, wrote:

"Not as a permanent policy except as the result of careful national and regional planning, since it would, if generally pursued, bring about the bankruptcy of the cities."

From the expressions of opinion of a score or more of commentators who amplified their ideas on the blank or in a separate letter, excerpts are published in *The Architectural Forum* article. A few others are quoted below:

Private Initiative and Scientific Taxation

Of the 8 persons who voted for private initiative exclusively, two gave as their solution of the housing problem the adoption of a scientific system of real estate taxation. On this subject Mayor William N. McNair said:

"I believe in tax exemption of buildings, not of land. If the sites were taxed their full rental value, they would be put in the hands of individuals who would put them to their best uses. Private enterprise would provide for all a satisfactory standard if the locations could be acquired at a moderate figure and if they would not be taxed as they were built."

And John S. Codman wrote:

"There is every reason to suppose that private enterprise will do a good job if taxes on buildings are removed, and at the same time the taxes on land are maintained high enough to make it unprofitable for landowners to withhold land from use unless paid extortionate prices."

Charles O'Connor Hennessey—also an advocate of the abolition of privilege and of dependence on ground rents as the sole or main source of governmental revenues—had this to say:

"Holding, as I do, to a strictly limited view of the proper function of government, I cannot agree that it is any part of the business of government to deal with the housing question at all, except, possibly, in exigencies in which (for the con-

THE QUESTIONS ASKED, AND PERCENTAGES OF AFFIRMATIVE REPLIES

GOVERNMENTAL AID TO LOW-COST HOUSING
AND TO SLUM RECLAMATION

If you believe that it would be in the public interest for the 1936 session of Congress to make available further governmental aid either to low-cost housing, or to slum reclamation, or to both, please indicate your ideas as to the purpose and methods of such aid by checking one or more entries under each head in the following list:

1. Purposes

73% To provide adequate low-cost housing, whether on sites to be cleared or on vacant land

71% To reclaim slums or blighted areas for uses that will most benefit the neighborhood or the community as a whole

43% To develop new satellite or "greenbelt" communities

2. Form of Federal Agency

27% A permanent Housing Division to be created in an existing Federal Department, and to be financed by Congressional appropriations

67% A United States Housing Authority, to be created as an agency of the Federal Government, with preliminary financing by Congress and with the right to issue its own bonds up to a specified amount

73% As an important feature of either of the foregoing, a strong and adequately financed central bureau for research and dissemination of information in the field of housing and community land policies

3. Financing of Projects

24% Wholly by the Federal Government

53% Partly by the Federal Government and partly by state and/or local governments

52% Partly by some governmental agency and partly by private capital

4. Apportionment of Federal Grants or Loans

4% By the President

64% By a Federal housing agency

17% By Act of Congress, apportionment to be among all of the states on the basis of population or otherwise

18% Partly by Congress and partly by Presidential or Federal agency discretion

5. Selection of Sites and Approval of Plans

30% By a Federal agency

72% By state or local agencies

6. Construction

19% By a Federal agency

8% By state or municipal governments

54% By state or local housing authorities

57% By private enterprise, under contract from or subject to supervision by some public agency

7. Operation

14% By a Federal agency

6% By state or local governments

83% By state or local governmental housing authorities

43% By private management, where legally possible, under lease from or supervision by the governmental unit which had aided in financing construction

41% By tenant cooperatives

8. Form of Subsidy, If Any

22% Outright grants of Federal funds

60% Combined loans and grants of Federal funds

48% Loans alone, at less than commercial rates, but on a basis that will protect the governmental lending agency from incurring a deficit; said loans to be made to:

37% Public housing bodies

36% Cooperatives or other non-profit-making, non-governmental groups

37% Limited-dividend housing corporations

20% Renting publicly financed housing at a loss only if tenants cannot be secured at rents which would pay an economic return

41% Writing down the cost of a site when that cost, because of the expense of clearing it of slum buildings, etc., is too high for its proposed use

35% Governmental insurance of loans made by private banking institutions

13% Tax exemption on both land and buildings

28% Tax exemption on buildings, but not on the land

28% No subsidy through grants or tax reduction on real estate, but financial aid by local relief agencies to individual families unable otherwise to pay an economic rent, similar to the aid given to families unable to buy food or clothing

64% Provision at public expense in large-scale, low-rent housing projects, of facilities and supervision for outdoor and indoor recreation, kindergartens, etc.

9. Private Initiative

5% Instead of any of the alternatives listed above, do you believe that the providing of adequate housing for the lower income groups ought to be left wholly in the domain of private enterprise, unaided by any form of governmental subsidy or loan, direct or insured?

If you answer "yes" to the preceding question, have you any evidence that private enterprise:

2% (a) Has provided such housing of satisfactory standard?

1% (b) Will provide such housing of satisfactory standard?

The foregoing blank as checked represents the personal opinion of

Name _____

Title or occupation _____

Address _____ Date _____

(If you have any solution of problems of slum reclamation or of low-cost housing other than indicated in the foregoing list, please outline your plan on the back of this questionnaire or in a separate sheet.)

On a card which accompanied the original mailing of this questionnaire, the persons addressed were asked to bear in mind that if they favored more than one course of action under any heading, more than one entry might be checked under that heading, or other alternatives might be written in. Of the 165 persons (listed on page 83 of this issue) who replied, 157 filled out the blank with or without additional comments; and 8 expressed their opinions in letter form only. The percentages shown are computed, therefore, on 157 replies; except for question 9, to which 3 of the letters in addition to 5 of the blanks gave affirmative answers.

servation of public health) unsanitary dwelling places might be regulated or forbidden. This end is already effected, in theory, at least, by laws or ordinances in all states. The idea that government should, directly or indirectly, undertake "low-cost housing," that is, *shelter*, for people is quite repugnant, and inconsistent in my view with the true function of government. People favor low-cost government housing, supported by bounties or subsidies raised by taxes, because the great mass of the people, it is asserted, can't get decent housing otherwise under our present dislocated economic system, which dooms the great mass of people to poverty. . . . It is well established that most of the people who live in *slums* do so because they are *poor*. The trouble with the poor is their poverty. If we could abolish *that* you wouldn't need to abolish slums. They would, just naturally, disappear!"

Another "Yes" reply to the question of dependence on private initiative—that of Edward M. Bassett—was qualified by the phrase, "outside of the slums." And Mr. Bassett added:

"Low taxes, low prices and good government will some day solve the problem. Government subsidies never will."

Comments on Subsidies

Several comments on the Subsidy section of the questionnaire are quoted in *The Architectural Forum* article. Here are three others—on the question of subsidizing the family rather than the house:

"People will not like it. Subsidy should be in a concealed form as much as possible."—SERGEI N. GRIMM.

"For those with incomes too low to allow payment of maintenance costs, housing should be provided, as now, on a relief basis. But in 'minimum decency' dwellings."—MILTON LOWENTHAL.

"I believe that the problem of housing relief clients should be entirely divorced from the problem of producing low-rent housing. When good housing is available at low rents, the relief bureaus can pay the rent of their clients in the new projects just as they are today paying the rents of clients living in old-law tenements."—GLADYS LA FETRA.

On the subject of direct subsidies for low-rent housing from the Federal Government, W. S. Landes wrote:

"I recommend direct subsidies not to exceed 20 per cent of the cost of any project, this percentage representing the possible difference between what could be accomplished by private initiative. If the program could be separated from politics, both in the Federal Government and in state and local administration, it would be a grand thing and much more could be accomplished."

And from Miles R. Frisbie came this statement:

"We, in Syracuse, have learned that it is entirely possible for a local housing authority to finance broad slum-clearance work up to approximately 75 per cent of the cost of the project through the issue of its own obligations. I have been very much interested to find how active a market there is for securities of that kind. . . .

"The logical thing to do would seem to be for the state to set up its own PWA fund from which the city authorities could obtain the inaugural funds required upon junior securities at very low interest rates. Any really sound project could easily meet this additional charge. It would of course retard the creation of the authority's own equity. This might or might not be a brake upon the execution of the long-term plan, but it would at least make possible the getting under way of work which would make a maximum contribution to the economic stability of the cities of the state, reduce local taxation, increase public employment and purchasing power, and improve the basic conditions of business and industry."

"To Do First Things First"

Among the 165 replies received, only 10 requested that their names be not used in connection with their answers. From an architect, who for certain reasons did not wish to be quoted directly, came the following significant comment:

"The most important step to be taken in the effort to improve housing is to do the first thing first. Until the following is done effectively, all other efforts will result in failure. Every community must be brought to announce publicly for itself what its minimum standards are for a 'habitable dwelling,' and must declare a public policy to exercise its public authority to demolish all dwelling structures which do not come up to this standard, and declare that their maintenance is a misdemeanor and will be so treated. These standards should be made entirely locally, should not be subject to dictation, and should be then coordinated and rated as a basis for the standard of dwelling sufficiency city by city.

"When this has been accomplished, there will at once result a very real and potent movement for rehousing the lowest brackets of the income scale population.

"Without this, all talk of better housing will be only better housing for those who can pay some one a good profit to get it."

The importance of a forward-looking labor policy was emphasized by Miss Catherine K. Bauer, who called attention to the Resolution on a Public Housing Program adopted in October, 1935, by the American Federation of Labor, three paragraphs from which follow:

"*Resolved*, that in locating public-aided housing preference should be given to communities having a decent labor policy and offering a variety of employment opportunities, to avoid any extension of the feudal conditions now prevalent in one-industry towns; and that all public-aided housing must be built by labor working at union rates and under union conditions; and be it further

"*Resolved*, that permanent Federal, state and local housing authorities, implemented with adequate funds and the power to acquire land and to construct and manage large-scale community housing projects, are the first requirements of an effective long-term program; and be it further

"*Resolved*, that there must be bona fide labor and consumer representation on all housing authorities, and that sponsoring and management committees of all specific projects must include a majority of representatives from the groups for whom the housing is intended."

Other Comments

Instead of attempting to fill out the blank, Alfred K. Stern suggested that his position had been made rather clear in his four-page article in the January 1, 1936, issue of *Survey Graphic*. This admirable statement, "Housing: A Ten-Year Program," merits careful study.

Another comprehensive statement came from Clarence Arthur Perry. It discussed "Governmental Functions as Respects Housing" under three headings: "Federal," "State," "Municipal." The last-mentioned section is published on page 81 of this issue, where a statement by Norman Thomas will also be found.

Finally, municipal officials and civic organizations concerned with governmental aid to slum reclamation and low-cost housing are urged to study the relationship of this *American City—Architectural Forum* survey to the housing bills before the last session of Congress, a combination of the best features of which it is hoped will be sponsored both by Senator Wagner and Congressman Ellenbogen in a new bill soon to be introduced.

It is obvious, of course, as several correspondents have suggested, that the housing problem will never be fully solved until the land problem and the poverty problem are solved. But this does not mean that all housing progress must wait on political and economic perfectibility. Well-considered legislation for the establishment of a permanent Federal housing agency is one of the nation's urgent needs. Even the conservative Committee on Economic Recovery expressed last month its belief that both private enterprise and public housing are necessary in their proper spheres.

The Disposal of Waste Materials in Mount Vernon, N. Y.

By **RICHARD E. STINSON**
Commissioner of Public Works

FOR about a score of years, Mt. Vernon has operated its own ash and garbage collection and disposal system directly under the Commissioner of Public Works. Prior to 1934, these bureaus were operated on a six-day working week, and collections of waste materials were made from each building thrice weekly, except in the commercial area, where collections were made daily. In line with general municipal economies, this service was reduced in 1934 and 1935 to twice weekly, but no change was made in the business sections, where the waste materials are picked up early each morning, before business traffic commences, to prevent blocking the main highways of the city. The residential sections are divided into four districts, and here collections are made twice weekly.

Not unlike other Westchester County communities, Mount Vernon is known chiefly as a city of homes. Nevertheless, it has excellent tidewater facilities leading to Long Island Sound, and supports many varied industries. Mount Vernon was founded in 1852, and in 1892 was chartered as a city. The population has increased from 21,000 in 1900 to 64,000 in 1934. This city, which forms part of the northern border of the great metropolis of New York, is approximately four square miles in area, and provides protection and education for many families of New York business men. It has an assessed valuation of approximately $150,000,000 and requires about $5,000,000 annually to finance the schools and many other public services rendered.

There are four crews of collectors; each crew is assigned to its respective district. Each district is divided in half so that collections are made on alternate days; that is, Mrs. W., who resides in district 1, sub-district A, has her refuse collected on Mondays and Thursdays, and Mrs. R., who resides in district 1, sub-district B, on Tuesdays and Fridays. Since the same crews of collectors operate in their respective asigned districts each week, they become accustomed to the habits of the housekeepers as to the locations of the waste receptacles, etc., thus eliminating the possibility of neglecting to collect the refuse. No regular collections are made on Wednesdays or Saturdays except in the business sections. All collectors and equipment are assigned to street cleaning on Wednesdays; consequently, the men operate on a five-day week with a shut-down on Saturday.

Equipment and Personnel

A fleet of twelve 5-ton dump-trucks covers the entire city. Some of the trucks have been in service since 1925. Repairs of the equipment are made at the city garage, which also comes under our jurisdiction. Generally, three trucks are assigned to each main district and crew. Beside the chauffeur, three laborers are employed on each truck—one loader and two barrel lifters. Although this arrangement may change from season to season, the personnel averages 12 chauffeurs for 12 trucks, 4 foremen, 24 lifters and 12 loaders. The average wage scale is from $4 per day for lifters, up to $5 for chauffeurs and foremen.

Regulations

City regulations require ash and other non-burnables to be placed in containers separate from garbage and burnables; and, in like manner, separate trucks are used. When the trucks have been fully loaded, those bearing ashes and non-burnables are dispatched to the city dump and emptied there, where a tractor-scraper is in service to keep proper grades. Trucks hauling garbage proceed to the incinerator where this waste material is burned.

The cost of collecting all waste in 1934 was $68,850.89, which includes wages, repairs and maintenance of motor vehicles and materials and supplies.

Department regulations also require that residents provide suitable receptacles. The containers, when filled, must hold not more than 4 cubic feet of material and not exceed 100 pounds in weight. Old oil drums and other one-time containers are prohibited, because these receptacles quickly develop sharp edges which cut the men and very often lead to infections. Regulations also require that the containers be placed at the curb. If a resident wishes the regular crew to carry waste to the curb, a fee of ten cents is charged for each container, including the return of the container to its original position. The money so collected is reported to this office and credited to the general fund. In 1934, collections for this service amounted to $1,078.80.

The Itinerant Collector

Last year, when prices of waste paper and cardboard soared high, dealers in this trade worked havoc with the Department by picking these materials from the receptacles before the scheduled arrival of the collection crew. We received complaints from citizens because the dealers, when picking over barrels, would strew the sidewalks and gutters with garbage, etc. Then, too, we noticed the lack of paper that usually accompanies the garbage when arriving at the incinerator. This is a very important requisite, since we depend solely upon paper and wood for kindling. The situation became so acute that it was necessary to pass an ordinance prohibiting dealers from extracting any waste from the receptacles on the curb. As a result, a few summonses were issued and this practice quickly stopped. Now we are receiving enough kindling to keep the furnaces going.

The Incinerator

The first unit of the present incinerator plant was built in 1922, at a cost of $41,000. It consists of two charging holes and two furnaces. In 1926 an additional plant of four charging holes and furnaces was built at a cost of $198,000. Therefore, we have today a plant consisting of six furnaces which cost a total of $239,000, not including interest. These improvements were financed through bonds, which are retired at the rate of $14,000 a year and bear interest of 4¼ to 4½ per cent. The last of the bonds will be due and paid for in 1947.

The cost of operating the incinerator in 1934 was $42,903.76, including wages, building and equipment repairs, power and light and supplies. Each year replacements or repairs of the equipment in these plants become necessary. Included in the figure of $42,903.76 is the cost of these repairs and replacements. In 1934, the amount expended for these purposes was $6,818.97, the largest item of which was for the purchase of new firebrick and linings, amounting to $4,853.91. Once or twice each year this Department advertises for bids on firebrick, clay, etc., to replace burned-out linings. Our own masons do the work of replacing the brick, usually on Sundays, when the furnaces have cooled sufficiently to permit the making of repairs.

All garbage trucks, when arriving at the incinerator, are driven to the main floor and dumped. A crew of men rake through the garbage to extract non-combustibles that might "foul" the fires. After this, a tractor scraper is employed to feed the fires through the charging holes. The ash residue from the furnaces is placed in the city dump.

The incinerator personnel consists of approximately forty men. Although the majority are classified as laborers, they are paid from a minimum of 50 cents an hour up, depending on the type of work done. The men now work five days a week, with no work on Saturdays.

A total of 22,675 tons of garbage and rubbish was burned in 1934. In addition, the plant disposes of all dead horses, dogs, cats and other animals.

Contracts for the reclamation of bottles and other waste materials, exclusive of paper, have been let by the city. The amount of $995.78 was collected by the city in 1934 for this privilege.

Dumping

When the city was expanding and new sections were being developed, clean fill, such as ashes and other nonburnable rubbish, was a prime requisite. While this city is, and always has been, well drained, there were a few swales that required filling. These locations have since been filled and properly graded, and the problem for immediate consideration today is the lack of available areas. In fact, this condition was apparent a few years ago, when it became necessary to pass an ordinance authorizing the Department of Public Works to charge a fee of 25 cents for each load brought into the dump by contractors and builders. In 1934, $206 was collected for dumping permits.

In solving this problem, two methods will be considered: (1) to seek available property in nearby communities that require fill; or (2) to negotiate with lighterage companies to tow the material to sea. In either case the expense would be greater than heretofore. A site outside the city was offered to us for filling purposes some years ago. When negotiations were being made, however, an adjoining community, through which we would have to pass, objected and threatened a lawsuit. The matter was then dropped pending further deliberations. The objecting community claimed that loose ashes would blow off the truck en route and scatter about the town. I believe we have successfully overcome this objection now that four new trucks have recently been purchased with fixed covers that completely seal the vehicles.

THE FOUR NEW AUTOCAR TRUCKS WITH HEIL 16-YARD CLOSED BODIES AND KINNEAR DOORS WHICH PREVENT THE SCATTERING OF ASHES BY THE WIND, RECENTLY ADDED TO THE COLLECTION SERVICE IN MOUNT VERNON, N. Y.

Collection Supplement

Complying with the suggestions of many civic organizations and the local press, this Department inaugurated in 1932 a new system of collection, called in the vernacular "put and take." Under this system, residents were not required to place the waste receptacles at the curb, nor was it necessary to return them when emptied. An extra force of approximately 36 men (3 for each truck) was employed in addition to the regular crew. Two of these men preceded each truck about one hour ahead of the regular schedule and carried the barrels and other waste containers from the rear of the premises to the curb. The other man closely followed each truck and returned the empty waste receptacle from the curb to its original resting

place in the rear of each residence. No charge for this extra service was made, except in instances where the containers were left inside the buildings and not placed in a convenient location on the property. The service was not extended to commercial or industrial houses nor to large apartments.

The purpose of this extra service was to eliminate the unsightly appearance of waste receptacles left at the curb from early morning until late at night. Other advantages of the arrangement were: (1) to effectively reduce the amount of rubbish blown by high winds from loosely packed containers to the highways and adjoining property; (2) to prevent garbage from being pawed and scattered about by dogs and other neighborhood animals; (3) to prevent waste-trade dealers and junkmen from going through the rubbish to retrieve bottles, papers and other waste having a market value.

This "put and take" service extended throughout 1932, as a regular budget expenditure of the Department, and in 1933 was continued as a work relief project. It provided employment for 72 unskilled laborers (2 crews of 36 each) who worked three days a week and received $12 a week each. In 1934 this system was not approved as a relief project, and, as drastic reductions were being made in the general budget accounts, the extra service was reluctantly discontinued. To insert this in the budget would have increased the estimate for collections about 40 per cent.

Despite the fact that Mount Vernon has grown considerably in the past five years, proportionately little increase is noted in the amount of waste collected. This is doubtless due to the large number of oil burners and gas furnaces installed, from which no ash remains. Then, too, the modern homes or apartments are now equipped with domestic incinerators. This likewise has naturally reduced the quantity of garbage normally expected through the increase in population. Comparative costs follow:

	1931	1934
Collection of ashes and garbage...	$121,142.50	$ 68,850.89
Incinerating garbage.....	53,865.92	42,903.76
Totals	$175,008.42	$111,754.65
Per capita costs	2.82	1.75

Security for Public Deposits

REAL protection for the bank accounts of state and local governments would involve reform of the entire national banking system, but in the meantime governments can help themselves by setting up improved safeguards for public deposits and mending their own financial practices.

Existing safeguards are of little real value, according to Martin L. Faust, of the University of Missouri, whose study, "The Security of Public Deposits," was issued last month by Public Administration Service. Local governments learned this lesson during the depression, when $400,000,000 of frozen public deposits meant payless pay-days, debt defaults, closed schools, and sudden curtailment of vital public services.

Professor Faust finds at least eight different devices which governments have used as safety checks for public deposits. In some states the courts have held that governmental units are preferred creditors when a bank closes and liquidates. Some governments, especially local units, make their financial officers personally liable for losses due to bank failures. Iowa, Wisconsin and Indiana have systems of state insurance covering public deposits exclusively. In many states banks are required to guarantee public deposits by either personal or corporate surety bonds. In other jurisdictions, banks, to qualify as public depositories, must pledge assets as collateral security.

These methods are criticized by Professor Faust. Giving priority rights to public deposits in the event of bank failure is widely condemned as unfair to private depositors and is in direct conflict with the state's interest in building a banking structure in which the people will have confidence. Holding the treasurer personally liable is regarded with extreme disfavor because no single person can fairly be held responsible for conditions he cannot control. Responsible men are discouraged from accepting public office. State insurance did not hold up in Iowa and Wisconsin during the depression; its chief weaknesses have been the unsound actuarial basis upon which the systems have operated, the failure to couple with insurance measures designed to strengthen the banking structure, and the handicap of the limited area within which a single state system may operate. Surety bonds have proved undependable: the cost of the bonds is prohibitive to banks, and the companies are free to cancel them at will, or to refuse to renew, which they have done as soon as financial conditions became serious. Collateral security, while the most effective safeguard now in use, is not depression-proof; the critical situation in the security market during the recent crisis made difficult for a time the liquidation of the types of securities usually required.

Other methods of safeguarding public funds now in use Mr. Faust finds more promising. He points out that the state-owned banks of Delaware and North Dakota weathered the economic crisis without jeopardizing the safety of their public deposits, and expresses the opinion that this scheme deserves further trial, "perhaps by cooperative action on the part of local governments within a region or by individual states."

"A central bank might even be organized to function as a depository for all public funds," says Mr. Faust, "although the sentiment which has crystallized in opposition to a central government bank makes it inexpedient to attempt the plan just at this time." In his opinion Federal Reserve banks could properly be used as depositories by all governmental units. He advocates, too, that the present Federal insurance of public deposits up to $5,000 be extended to cover public deposits in full, the cost of additional insurance to be assessed against the total amount of public deposits insured.

All these devices, however, says Mr. Faust, are no more important than the reforms public bodies themselves can make to minimize the risk of their funds in banks. "One way to secure public deposits," he remarks, "is not to have any." This paradoxical statement suggests the sound practice of keeping deposits at a minimum by maintaining only a sufficient cash balance to meet the obligations of government as they arise. To follow such a plan, however, finance officers must learn to time cash receipts and expenditures properly; and they must be able to forecast in accurate estimates for months in advance the cash requirements of their governmental units. Surplus funds, if there are any, may be invested in United States Government obligations.

Professor Faust advises that public deposits be placed in Federal Reserve member banks, distributed in several, if possible, and the amounts of the deposits given publicity. He points out that the new Federal Banking Act governs the rate of interest on time and savings deposits of member banks, so that the maximum interest rates on public deposits may soon be fixed in virtually all commercial banks, which will make bidding for deposits less attractive than it once was.

As a final word of advice, he adds that "in both state and local governments adequate provision for audits, abandonment of the system of elective treasurers, and the creation of an integrated financial structure permitting effective centralized fiscal control would tend greatly to eliminate the hazards that jeopardize the safety of public funds in banks."

JERSEY CITY

Modern Traffic Control Systems

A first step in deciding what to do with a group of troublesome intersections is to know what can be done and what actually is being done in similar situations. Here Mr. Reid sketches the evolution of electrical control from the familiar regimented on-and-off of all lights together to the more flexible, fixed-time systems now coming into favor.

By R. A. REID
General Electric Company

MADISON

THE original control of traffic lights was by a manually operated switch under the operation of an officer stationed on the street surface or in a tower.

From the manually operated station, it was only a short step to automatic control by motor-driven switches. The use of a system of lights all controlled from a single timer, and all going red or green together, has its disadvantages. The proportion of the time allotted to the through traffic and to the cross traffic must of necessity be the same at each intersection throughout the entire system.

There is a widespread idea that this centrally operated control system speeds up traffic. This is due to the fact that a higher initial or crest speed may be attained with safety after the installation of such a system. However, the increased standing time at intersections more than offsets the slight gain resulting from the increase in crest speed.

In order to eliminate the disadvantages of the operation of traffic signals in synchronism, or simultaneously, the method of insuring a smooth flow of vehicles through a street or area is to use an individual controller at each intersection. These controllers are driven by synchronous motors and will all stay "in step" without any interconnecting wires. Such controllers may be set to start their cycles of operation in such an order that vehicles passing through the signalized area at a predetermined rate of speed will always have a green light ahead of them.

Any time in such a system passes a certain number of vehicles at the required speed; the succeeding controllers are so timed that all these vehicles will reach each intersection and find a green light awaiting them. As long as this band or wave of vehicles proceeds at the proper speed, they will pass entirely through the area. The intervals between the waves are utilized to pass traffic across the highway and into it from the side street. Each timer is set individually to pass the proper percentage of traffic in each direction, at its particular intersection.

The system just described is known as the progressive or "limited progressive" system. It operates very efficiently when the traffic flow in all directions is practically constant throughout the driving hours. The controls always operate at the same time-cycle length and with the same progressive setting. New York City has some 60 miles of such progressive systems, consisting of several groups five miles or more in length. A typical controller of this type, as used in New York City, is shown in Figure 1.

In most large cities there is a decided morning peak-traffic flow inbound to the business district. Late in the afternoon, there is another rush as the outbound traffic leaves the main district.

To accommodate these variations in the direction of traffic flow, controllers are available which are known as "triple reset" controllers. A system of triple reset interconnected controllers can be set so as to efficiently handle any one of three different types of progression. For instance, the first reset might favor the inbound rush traffic in the morning, the second reset average conditions, and the third, the outbound rush in the late afternoon.

In such a system, to make it what is termed a "flexible progressive" system, it is usually advantageous to change the length of the time cycle so that longer periods for clearing out the traffic volume are available. These flexibilities are obtained from a "master" or "supervisory" control station.

A good example of the flexible progressive system with a central control station, today, is Philadelphia's main business district.

Figure 2 shows the control board which supervises the entire control system in the main retail district. Its ultimate capacity is 300 intersections, and it can be increased to handle any number. The main master clock drives the program device, which provides for five complete changes of timing and reset each day, and has separate programs for Saturdays, Sundays, and holidays. All apparatus is in duplicate, and many automatic safety features are provided.

In the flexible progressive system just mentioned, the cycle split always remains the same regardless of the length of the time cycle. This would presuppose that the percentage of time necessary to pass the north and south traffic was always the same throughout the day. In some cities

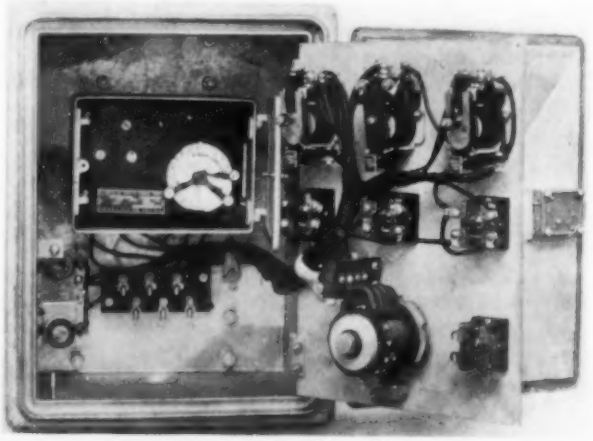


FIG. 1. HAND AND AUTOMATIC CONTROL BOX FOR NEW YORK

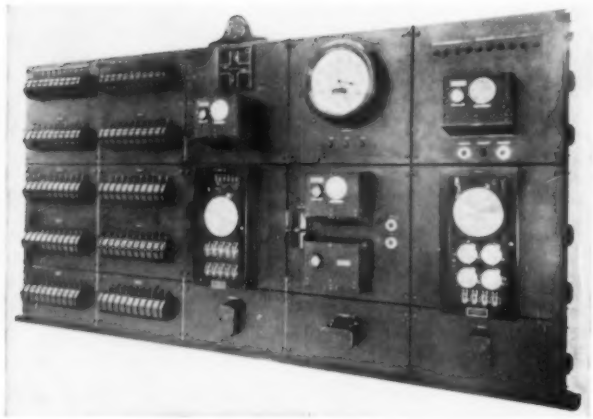


FIG. 2. PHILADELPHIA'S TRAFFIC CONTROL SUPERVISORY BOARD

this is true, in others it is not. Sometimes we find a condition where traffic is 75 per cent at certain hours, 50 per cent at other hours, and only 25 per cent at some other time. In other words, the character of traffic flow at a certain intersection may change radically at certain hours, yet a close study shows that these changes occur regularly every day at the same hours.

In order to take care of this condition, it has been necessary to carry the triple reset idea still further, and in addition to provide for a triple cycle split or triple percentage adjustment. Thus it is possible not only to set up three different types of progression, but it is possible at the same time to select any one of three cycle splits.

Michigan Avenue Still the Top

The latest and most flexible controller yet designed provides for three resets, three cycle splits, and thirteen total cycle lengths all selected from the master control. Figure 3 shows the intersection control timer. This system is in operation on Michigan Avenue, Chicago, one of the hardest problems in traffic control. This avenue carries by far the greater part of the traffic entering and leaving the Loop district from the north and the south.

Pedestrian safety is recognized and the pedestrian is given a specific signal of his own—a white "walk" shown against an opaque background.

Now, for the first time, the driver is told that he is or is not in the progressive wave and will or will not pass through the system without a stop. As long as the signal immediately ahead shows a steady green light, the driver knows he is driving correctly and will receive a green light at the second signal ahead. If, however, he were proceeding with a steady green light immediately ahead of him and it suddenly changed to flashing green, he knows he is now behind the progression, and must increase his speed or he will be stopped at the second intersection by a red light.

On the other hand, if a red light ahead of a vehicle changes to flashing green, the driver knows he may proceed, but he is ahead of the progression and unless he slows down he will not find a green light at the second signal ahead. Thus these signals acts as a perfect speed control: the driver is notified to speed up or slow down.

Another innovation is the use of illuminated signs on top of the signals which tell the driver how fast to drive, and in some cases give simple, easily understood directions to traffic.

Records of six months' operation show that traffic has been speeded up nearly 30 per cent and accidents have been reduced 46 per cent. These records will naturally be improved as the familiarity of the driving public and the pedestrians with the signals becomes greater and greater. The traffic engineers and the residents of Chicago are all highly enthusiastic concerning the system. Plans are under way to extend the system.

At present about 33 intersections are controlled on Michigan Avenue. Eventually the number will be several times this. In addition, approximately 100 somewhat similar controllers will be used in small non-interconnected and interconnected progressive systems throughout the city.

The question as to how many colors should be used in a traffic signal is debatable. Two are all that are absolutely necessary, but, except in a few localities, it is felt that the third or amber light should be used to convey a warning to the approaching driver that a change is at hand.

New York has solved this problem by extinguishing the green and leaving the signal dark for a few seconds before showing red. Then, a short all-red period is held long enough to clear the intersection before the opposing green is shown. Education has taught the drivers to stop when the green light goes out, and make the two-light signal safe.

What Chicago Is Doing

Out in the Chicago district, considerable work has been done with a new sequence known as "safety amber sequence." The conventional three-color signal is used. The innovation comes in the fact that the clearing period following the Go on one street and just preceding the Go on the cross street is split into two parts. The first part is the conventional interval while cars which have had the green light are brought to a stop on the amber light. The second part is a showing of amber to the street which is about to move, this interval being very short, never over two seconds.

The purpose of this short amber is to promote safety. When the amber light flashes, the driver gets his car into gear, accelerates his engine, and is ready to get under way the instant the green shows. A definite "get ready to start" signal is thus provided, which tends to discourage the dangerous practice of watching the change signal on the other street, and starting prematurely.

Wherever this sequence has been tried, it has met with immediate approval. Intersections are cleared quickly, and safely, and this is the purpose of every traffic control system—SPEED WITH SAFETY.

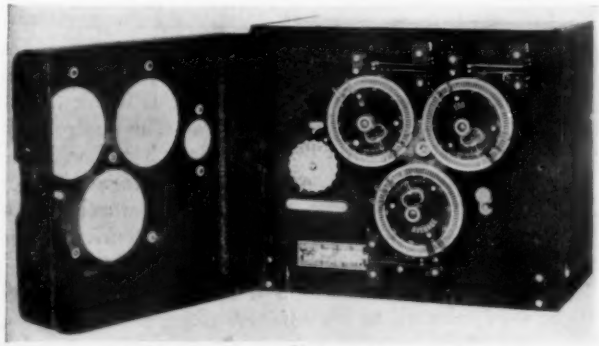


FIG. 3. CONTROL TIMER ON MICHIGAN AVENUE, CHICAGO

Uses of Sludge Digester Gas

One Year of Operation Completed at Beaver Dam, Wis., Sewage Works

By **BRUNO J. HARTMAN**
Vice-President, The Jerry Donohue Engineering Co., Sheboygan, Wis.

THE heated digester of the new sewage-treatment plant at Beaver Dam, Wis., produces large quantities of methane gas varying from 550 to 700 Btu content, the quantity produced depending upon the rate of digestion, quality and quantity of the sludge pumped to the digester, and the character of the waste treated. The gas from the digester is collected under a PFT floating cover and is pumped into a welded spherical gas tank by means of a compressor controlled by a pressure switch, which starts the compressor when a 7-inch water pressure has developed under the cover, and stops it when this pressure is reduced to 2 inches. The compressor has a capacity of 15 cubic feet per minute against a pressure of 40 pounds per square inch. A recording meter, a condensate trap and a flame trap are set in the pipe line between the digester and the compressor.

The amount of gas produced at Beaver Dam is higher than ordinarily can be expected, owing to the large industrial load. It ranges from 10,000 to 18,000 cubic feet per day, or from 1 to 1.8 cubic feet per capita. Usually, domestic sewage produces from 0.5- to 0.75-cubic foot per capita per day.

The gas, which is stored in the Hortonsphere, is used at 7 inches water pressure for heating the plant building and digester and for operating the incinerator. The purpose of the storage capacity is to balance the supply against the demand. Without a storage holder, the gas supply would exceed the requirements on some days and be insufficient on others. This would make it necessary to waste gas part of the time and buy additional fuel at other times.

The storage holder also has a direct effect on the efficient operation of the screenings and grease incinerator. The incinerator requires 1,000 cubic feet per hour to produce good results. This is in excess of the hourly production rate; consequently it would be impossible to operate the incinerator without creating a nuisance.

During prolonged cold periods in the winter of 1934-35, there was sufficient gas available to maintain proper temperatures without the use of coal or other fuel. At no time since the plant was put in operation has additional fuel been required. Based on previous experience, the use of sewage gas for heating at Beaver Dam eliminates a fuel bill of approximately $800 per year.

The Treatment Plant

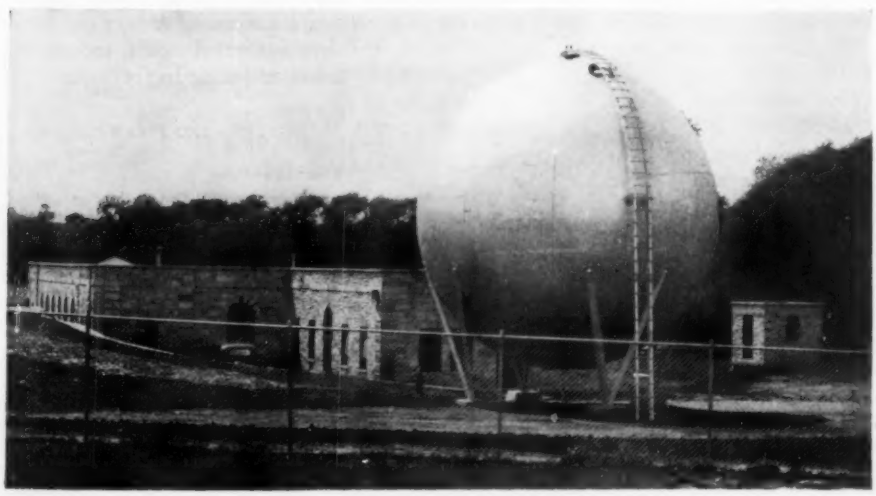
The modern sewage-treatment plant at Beaver Dam was financed by a PWA loan and grant in 1934. While the population of the city is approximately 10,000, the actual load on this plant is equivalent to that from a city of 35,000 people, owing to the various local industries. The dry-weather flow reaches 1.2 and 2.5 mgd, with an average of 1.4 mgd.

On entering the plant, the sewage passes through a bar screen where coarse materials that might cause fouling in the pumps or pipe lines are removed automatically; and they are destroyed in an incinerator using the sewage gas as a fuel.

Two rectangular primary sedimentation tanks receive the sewage as it leaves the bar screen. Owing to the low velocity at which the liquor passes through the settling tanks, approximately 75 per cent of these solids settle to the bottom, while grease, oil and other lighter materials rise to the surface.

Each tank is equipped with Rex flight conveyors which travel lengthwise along the tank floor, scraping the settled sludge to the sump at one end. Rising to the surface, the conveyors move in the opposite direction, skimming grease and oil into a scum trough at the opposite end of the tank. The sludge scraped to the sump is pumped to a digester while the grease is pumped into a separation box, separated from the water and burned in the incinerator.

Sewage, after it leaves the settling tanks, still contains



THE 26-FOOT, 9-INCH DIAMETER WELDED SPHERICAL SEWAGE GAS HOLDER AT THE BEAVER DAM, WIS., TREATMENT PLANT

minute microscopic organisms and solids in solution. These compounds are removed by converting them into stable non-putrescible compounds which will not cause pollution after they enter a watercourse.

Sprinkling Filters

There are four sprinkling filters for this purpose, each 128 feet in diameter. The sewage from the settling tanks is sprayed across the surface by Dorr rotary distributors. As the sewage trickles down through the rock bed, aerobic bacteria present in the gelatinous film covering the rock particles change the colloidal matter and solids in solution to stable compounds, increasing the thickness of the gelatinous film. It eventually becomes heavy and, not being capable of supporting itself, drops off and is washed from the bed by the sewage.

The discharge from the trickling filters containing stabilized material is passed through a second settling tank similar to the first, where these solids settle to the bottom and are likewise pumped to the digester.

The Digester

In the digester the solids pumped from the primary and secondary settling tanks are broken down by anaerobic bacteria and changed to a relatively inert and inoffensive compound. This sludge, after digestion, is free from odor and readily dried, and forms an excellent fertilizer. The digester is equipped with heating coils, and a constant temperature of 85 degrees F. is maintained to give maximum efficiency.

The Beaver Dam plant was designed by The Jerry Donohue Engineering Co., Sheboygan, Wis., and the Hortonsphere was erected by the Chicago Bridge & Iron Works, Chicago, Ill.

Maintenance and New Construction under CWA and FERA

Ann Arbor Has Operated on the "No Work, No Pay" Plan Throughout

By **GEORGE H. SANDENBURGH**
City Engineer, Ann Arbor, Mich.

IN order to get a true picture of what has been accomplished in Ann Arbor with welfare CWA and FERA labor, it is necessary to go back to the early fall of 1930, when unemployment first came to our attention. During the fall of 1930, one storm sewer was built, and through the winter of 1931 the Park Commissioner put on a wood-cutting project. Our real effort to aid the unemployed started in June, 1931, when we began work on a large program of storm-sewer construction. This sewer-building program, which is still under way, reached its peak under CWA in the winter of 1933-34, when we had as many as 1,000 men working at one time.

Our largest project was the so-called down-river sewer. This is a 36-inch reinforced concrete pipe sewer, leading from the city to the sewage-treatment plant site, approximately 4 miles east of the city; 4,660 feet of this sewer was built with welfare labor, 11,640 feet under CWA and 2,805 feet under FERA. The concrete pipe were built in our municipal garage, using welfare labor. The forms for making the concrete pipe were rented. This sewer was built at a total cost of $270,673.02; of this amount, the city paid $73,011.49. The balance of $197,661.53 was welfare, CWA and FERA labor, and a clear saving to the city.

In 1931, 1932 and 1933, approximately 80 acres of land was farmed, and large quantities of vegetables raised, which helped to reduce welfare costs.

Park improvements have been carried on continuously since 1930. The improvements are such as could not have been made by tax money. The most important item was building a nine-hole addition to the municipal golf course. Another worthy project was the filling, grading and beautifying of the river front in Riverside Park.

We, in Ann Arbor, are rather proud of what has been accomplished by use of welfare, CWA and FERA labor. The following tabulation shows the amount of work and the cost.

At the outset, the city adopted the work relief plan and the "no work, no pay" slogan. During the time the city was in charge of welfare, at least 80 per cent of the money spent was turned into permanent public improvements. The results obtained with CWA labor were very satisfactory; the results under FERA were not as satisfactory. The trouble was not with the men but in the rules and regulations. Much better results could be obtained at much less cost if local authorities were in charge.

A variety of work was done, consisting of the building of sewers, cobblestone gutters, new streets, park maintenance and new construction, the addition to the municipal golf course, and lawn extension grading. The city has made good use of these welfare agencies during the period of the depression and has converted relief money into $628,653.98 worth of permanent public improvements.

SUMMARY OF COSTS OF WELFARE, CWA AND FERA PROJECTS, ANN ARBOR, MICH

DISTRIBUTION OF COSTS

Projects	Quantity	City Cost	State Cost	CWA Cost	FERA Cost	Tota
Sewers.....	2.904 miles	123,591.86	26,352.66	171,096.63	36,766.23	357,807.38
Stone gutters	19,354 lin. ft.	4,748.80	10,565.39	1,426.70	920.50	17,661.39
Parks & miscellaneous projects...		166,735.99	30,690.00	23,014.82	32,744.40	253,185.21
Total...		$295,076.65	67,608.05	195,538.15	70,431.13	$628,653.98

SUBDIVISION OF DISTRIBUTION OF COST

Furnished by:	Labor and Equipment	Material	Engineering	Tota
City.....	229,225.11	53,916.94	11,934.60	$295,076.65
State	67,608.05	.....	.....	67,608.05
CWA.....	163,291.26	32,246.89	.....	195,538.15
FERA.....	70,431.13	.....	.....	70,431.13
Total.....	$530,555.55	86,163.83	11,934.60	$628,653.98

Street Maintenance on Badly Bent Budgets—II

Street Officials Report on 1935 Work and 1936 Prospects

Richmond, Ind.

THE streets of Richmond are in the best condition they have been in for several years. This applies to macadam and gravel streets, which comprise 58 per cent of the improved mileage and which receive periodical maintenance by thin surface treatment.

The practice has been to apply a very thin layer of crushed gravel or stone chips to the cleaned surface. On this, emulsified asphalt is applied at the rate of about 0.2-gallon per square yard. After this has broken, another layer of chips is added, the two layers amounting to about 5 pounds per square yard. The surface is then rolled to set the chips, and the street is opened to traffic after about ten hours. Later, traffic very much improves the surface condition. About 20 miles of pavement averaging 30 feet in width has been surface-treated in this manner.

The cost of this class of work has averaged 2.5 cents per square yard for both labor and material. This method of treatment requires renewal about every third year on moderately heavy traffic streets. It is always done by the regular street forces.

At present about 500 work relief laborers are employed grading and graveling new streets which have been platted for several years but never opened. This class of labor is also used on several park projects, such as golf course and ball grounds.

S. W. Hodgin,
City Civil Engineer.

Fair Lawn, N. J.

GENERALLY, the streets of the borough of Fair Lawn are in good condition; in some cases, in excellent condition. They vary from concrete pavement down the line to dirt roads. Out of a total of about 50 miles, 1¾ miles are state highways, 9 miles county roads, and the rest borough roads. For the past five years no capital expenditures have been made for roads, although about 2.25 miles have been constructed with state aid, the borough's share being raised in budget appropriations over a short period of years.

Normal maintenance of the borough roads consists of penetration patching, sealing and shoulder work. Each year, several streets that bear relatively heavy borough traffic, and where maintenance costs are running high, are torn up and rebuilt, with either the maintenance crew, or relief labor. At the same time, proper provision is made for drainage, and storm drains are constructed on any new work. This new work is paid for out of the current maintenance budget.

About 100 different relief laborers have been employed on this type of work from time to time, never more than 20 to 25 men employed at one time, since the amount of relief funds received is never enough to keep a man steadily employed.

I feel that even in a moderate maintenance program it is impossible to do effective work unless suitable equipment is furnished. At the present time the borough has a 7-ton gasoline roller and a 7-ton motor patrol grader, which are used with effective results both in the regular maintenance crew and in relief work. In addition, there are two 1½-ton trucks in use, usually one with the regular crew and the other with the relief crew.

For snow removal, the grader and one of the trucks are equipped for plowing the local roads, the state and county taking care of their own roads.

The budget appropriation for 1935 was $20,000; for 1934, $15,000. The increase for 1935 was to cover the cost of providing oils for sealing a number of penetration roads and surface-treated roads which are in great need of additional oil for proper protection of the pavement.

Where the budget is limited, the cost of paying for fairly expensive equipment has been met by renting the equipment over a number of years, and the rental is applied against the purchase price when and if sufficient money is left over to take care of such expenses. At the same time, the rental agreement permits the borough to determine over a period of a year, or two years, the need and advantage of such equipment.

The normal organization of the regular maintenance crew consists of a working foreman, driver of one of the trucks, with three laborers, who operate the other truck, grader or roller, as the need may be, a concrete laborer, and a handyman.

From a careful study of costs, unless it be a very short stretch of road to be rebuilt, it is more economical to rebuild roads by contract. However, during the past several years, short stretches of reconstructed road, built either with relief or with regular maintenance crew labor, proved advantageous, for the cost of letting a contract, the cost of the contractor getting his equipment to and from the job, would have run the cost up too much for the size of the project. Furthermore, these sections were built between seasons, after the havoc of the winter frosts on the earth roads was repaired and the patching crew finished up its work.

F. E. Harley,
Borough Engineer.

Manchester, N. H.

AT present the streets of Manchester, as a whole, are in good condition. The main street is built of granite blocks, covered with cement, and the main arteries leading from the city are of reinforced concrete. On our other permanent streets, we use bituminous concrete and asphalt. All this work was done by the regular city forces.

The city has two asphalt mixing plants, which turn out an average of 275 tons of material each day. This amount keeps two road crews at work. The mix consists of 1,296 pounds of 1¼-inch stone, 812 pounds of ¼-inch stone, 360 pounds of sand, and 100 pounds of asphalt, and costs between $1.50 and $2.00 per ton mixed. In addition to

"Red dog" is "hot dog" in Canton, Ill., and a number of other cities where the slack from local coal mines is burned, and makes a good traffic-bound maintenance material.

the road workers, there are three crews working on sidewalks, and one crew doing nothing but cement work.

In 1935, in conjunction with the State Highway Department, we constructed three miles of road, using a mixed-in-place method. The work consisted of a base of 12 inches of run-of-bank gravel, rolled and oiled; then a 3-inch top coat of 1-inch stone. The stone was spread dry, covered with a heavy road oil, mixed well with a road grader, and then rolled. A seal coat of tar was applied and covered with sand. This method proved very economical, but as it was our first attempt, we perhaps failed to take full advantage of all the savings that could be effected.

It is rather difficult to arrange our program for 1936, because we shall not know how much money can be spent until some time in the spring. Of course, we intend to draft a tentative program so that we shall know approximately how much money to ask for. During the past month much agitation was created for securing a Federal grant for building new sidewalks. Our city is noted for its good roads but not for its sidewalks. At present we are building new sidewalks at the rate of about 2 miles per year. The property owner pays one-half of the yardage cost, and the city also pays one-half. If the sidewalk is cement, the full charge is $2.25 per square yard; if new asphalt, the full charge is $1.50 per square yard; and if resurfacing, the full charge is 75 cents per square yard.

FRANCIS B. KENNEY,
Surveyor.

Cincinnati, Ohio

THE streets of Cincinnati are in excellent condition, with the exception of certain bituminous macadam streets. Streets are kept in good condition by carefully planned annual maintenance, which includes the following operations:

1. Sealing of cracks in all concrete and block paved streets with asphalt. Removal of excess expansion joint material and grinding of high joints.
2. Removal of defective areas in asphalt pavements by superheaters, and replacement with bituminous mixes manufactured in a modern, municipally owned asphalt plant.
3. Patching of bituminous macadam streets with bituminous concrete.
4. Raising of slab pavements to grade, when they have settled, by hydraulic Mud Jack operations.
5. Repaving or asphalt resurfacing of rough areas in block pavements.
6. Surface treatment of wood block pavements with asphalt emulsion.
7. Oiling of water-bound and similar low-grade pavements.

Lack of funds has prevented our surface-treating macadam streets, which has resulted in crazed, pervious surfaces, with the eventuality of increased future maintenance.

Throughout the depression we have adhered to our maintenance schedule by increasing the efficiency of our operations wherever possible and by holding betterment work to a minimum. However, as we mentioned before, we have been forced to practically abandon the surface treatment of macadam streets.

We have done all the street maintenance with our regular forces, very little relief labor being obtainable other than CWA, FERA, and WPA labor, none of which is available for strictly street maintenance work.

In 1936, we hope to expand our maintenance work, particularly the surface treatment of macadam streets. We are planning to complete two material yards, served by railroad sidings to eliminate long hauls to outlying suburbs; also, we hope to replace several worn-out pieces of equipment with modern types. We shall be handicapped in 1936 by the large amount of supervision necessary on the WPA program, which is now in full swing.

C. E. BROKAW,
Superintendent, Division of Highway Maintenance, Department of Public Works.

Dickinson, N. Dak.

OUR streets in general consist of sheet asphalt paving, a cut-back asphalt, graded-aggregate mix paving, and native dirt. The sheet asphalt, now in place for nine years, is in rather poor condition. It is losing its binding properties, and we have considerable repair work to do in filling cracks, patching worn-out spots, and reducing expansion bulges. The concrete base has failed in many places, owing to excessive expansion. This has caused many bad failures in the surface asphalt.

Our cut-back mix, which has been in place over a year, has required no maintenance and shows every indication of being a satisfactory and long-life pavement. The dirt streets, which predominate, are generally in rather poor shape owing to the protracted and severe drought. They are maintained with a dual-drive motor patrol. Lack of rain makes it impossible to keep out the corrugations.

All the material for patching pavement is mixed in a central plant with gas-fired heaters and is then transported to the site. All street maintenance work is done with our local regular forces, as we have never been able to get through any relief projects to handle this kind of work. Relief labor was used, however, in a small paving job where gravel for the subbase was excavated and hauled with relief labor and trucks. The asphalt mix was placed by contract, with a provision that relief labor be used wherever possible. This resulted in a considerable saving.

Plans for 1936 do not involve any changes over 1935. A project was placed before PWA for paving 100,000 square yards with asphalt mix. This would greatly affect our maintenance methods, since it would change the predominant street material from dirt to asphalt mix. The Street Department is hampered by the lack of proper equipment. Outside of the new Austin motor patrol grader, the equipment consists of an old pick-up truck, and a horse-drawn dump-wagon.

L. W. VEIGEL,
City Engineer.

Oklahoma City, Okla.

THE majority of the paved streets in Oklahoma City are in good condition—kept so out of our annual maintenance fund of from $50,000 to $60,000. Several

older, major streets, paved with asphalt, are worn thin, but we are rapidly correcting this condition this fiscal year by heavier patch work, which amounts to light resurfacing in many locations.

During the depression years, prior to 1935, we insisted on a reasonable budget item and drove contract prices on asphalt and concrete repair work down with increased competition. Up to 1935, the work was done largely with regular forces. Last year we did a great deal more repair work with our ordinary budget by taking a material advantage of the WPA for labor and materials and by owning and operating a municipal asphalt plant. The city plant effected most of the marked reduction in cost of maintenance.

COMPARISON OF COSTS
SHEET ASPHALT SURFACE COURSE REPAIRS

Date	No. Tons	Total Cost in Place	By	Cost per Ton in Place
7-1930 to 12-1930.....	1,576.5	$31,530.00	Private cont.	$20.00
7-1931 to 12-1931.....	139.5	1,883.25	" "	13.50
7-1932 to 11-1932.....	1,598.5	15,923.50	" "	Av. 9.96
11-1932 to 12-1932....	310.0	2,790.00	" "	9.00
7-1933 to 12-1933.....	2,027.5	18,247.50	" "	9.00
7-1934 to 12-1934.....	2,110.0	18,990.00	" "	9.00
7-1935 to 12-1935.....	9,030.5	43,479.98	Municipal plant	4.81

Since the advent of the WPA, we have received, to November 1, 1935, WPA help to the extent of $69,943.19 in labor, materials and equipment (including materials under contract which will be used over a period of perhaps four months). Of this amount, labor used totaled $33,822.43. Oklahoma City has about 310 miles of paved streets.

VIRDEN A. RITTGERS,
Office Engineer, Office of City Engineer.

Port Huron, Mich.

THE pavements of the city of Port Huron are, on the whole, in excellent condition. For the past four or five years, we have been using a hot asphalt for all repair work on all types of pavements, specifically Stanolind No. 6 paving asphalt, which has proved very satisfactory and effective for all patch work, and for crack filling in concrete pavements.

Regular city labor forces only are used for pavement maintenance work. Under PWA the city resurfaced approximately 2 miles of brick pavement with sheet asphalt. We now have within the city 27 miles of concrete, 10.25 miles of asphalt, 5.5 miles of brick, 1 mile of curb and gutter and cinder, and 6.5 miles of gravel pavements, with 83 miles of unimproved or dirt streets.

As yet there is no program for street paving, with city funds, planned for 1936. Project applications have been submitted to WPA for graveling and paving.

EARLE R. WHITMORE,
City Engineer.

Longview, Wash.

THE streets of Longview are generally in fair condition, thanks to the legislation that was enacted to allow the cities a just share of the gas tax monies collected. This has permitted us to buy the necessary equipment to maintain our gravel streets and also to purchase the material to surface them.

All maintenance work has been done with the regular force of street laborers. Until recently we have not employed any relief labor, but at the present time we are authorized by a PWA project to use seventeen men to do general cleaning-up throughout the city streets. The city was also given a project for special maintenance, which includes the reconstruction of bridges and ½-mile of asphalt concrete, which will be undertaken as soon as weather conditions become favorable.

There are no plans for 1936 other than general maintenance, and some small special bridge project may be considered.

V. J. NYSTROM,
Street Commissioner.

Punxsutawney, Pa.

THE streets of the borough of Punxsutawney are generally in good condition. They have been put in good condition by using relief labor to grade and place native stone or slag base, after which we have surfaced them by a treatment of 200 pounds of stone and 1½ gallons of bituminous material per square yard. The borough pays for all materials, but in the case of black topping two-thirds of the cost is assessed against the property owners. This amounts to about 50 cents per square yard charged to the property owners. The grading and laying of the base are done with relief labor entirely, and the black topping is done mostly by the borough's own forces with some relief labor.

Plans for 1936 call for a continuance of the grading and the laying of slag base with relief labor, followed by surfacing the streets partially with our own forces and partially with relief labor. We expect to do about 4 miles of street in 1936.

HARRY M. WALKER,
Borough Engineer.

Winchester, Mass.

EVERY public street in Winchester is surfaced with some type or other of black top material, and they are all in very good condition. While the Highway Department's surfacing budget has been substantially reduced, we have more or less concentrated on patching and surface treatment, to the detriment of other phases of our work, and have endeavored to maintain the street surfaces in this way, which we have found to be most effective during these times of reduced budgets.

Together with the maintenance work, which has been done entirely by our regular employees, we have entirely reconstructed in the last three years about 4 miles of our main highways with state and county assistance. These jobs have been used as relief projects as much as possible, employing about 80 men on an average throughout the work.

The program for 1936 contemplates one major reconstruction job which will use approximately the same amount of relief labor plus the regular highway maintenance work.

PARKER HOLBROOK,
Superintendent of Streets.

Necessity being the mother of invention, Rochester developed a new hot sheet asphalt mix made entirely of stone dust and asphalt cement which is non-skid. Another evidence that depressed maintenance budgets have had a silver lining.

Cincinnati, Ohio, has adhered to its regular maintenance schedule by increasing the efficiency of its maintenance operations wherever possible and by holding betterment work to a minimum.

Rochester, N. Y.

WORKING these days with a greatly reduced budget, a man naturally takes pride in what he has done and wishes to do as much, if not more, under the present conditions; but to do this he must make an economical effort. Necessity being the mother of invention, H. Walter Hughes, Supervisor of the Testing Laboratory, and I worked on the development of a new hot asphalt sheet mix during the winter months. In consequence, we were able to manufacture a type of pavement made entirely of stone dust and asphalt cement and yet with a pronounced non-skid texture. This we were able to produce at a cost of $1.00 a ton less than stone-filled sheet of the Topeka type previously used to maintain our pavements. Between 12,000 and 15,000 tons of hot-mix are produced each year at the city-owned asphalt plant.

A surface heater was used for the first time in Rochester in 1935, and it was a great help in maintaining streets which had outlived their paving guarantees.

In previous years, we treated the dirt streets with chloride. In 1935 we used tar and asphaltic dust layer, which was very effective and satisfactory. This method did not call for re-treatment except on very heavily traveled dirt streets, and then we were able to scarify and reshape the surface in a very satisfactory manner.

A salt-stabilized road has been built with pronounced success and more would have been built had it not been for the extremely heavy rains of the season, necessitating the expenditure of funds for sewer repairs. The items listed above are just the high spots of this year. Throughout the year we proceeded with the other lines of maintenance, such as surface treatment of park roads and general patching. No relief labor was used. As for 1936, it all depends upon which WPA projects are approved and how much is accomplished.

E. A. MILLER,
Supervisor of Maintenance, Division of Maintenance and Operation, Department of Public Works.

Warren, Ohio

THERE are 49 miles of paved streets in Warren, 12 miles of bituminous macadam, 43 miles of ash-graded street, and 16 miles of dirt streets in the outlying districts. The streets are kept in very good condition by maintenance from funds furnished by the gasoline tax. Since the days of CWA, FERA, and WPA, we have been submitting projects for labor and part material for turning brick in repaving several brick streets. We are now completing projects amounting to about 5 miles of bituminous re-tread on the ash-graded streets. We have also submitted a project to construct a bituminous re-tread top on the rest of the ash-graded streets, about 43 miles, for 1936. On all of our projects, we use WPA labor and a percentage of material, the city supplying the supervision. Re-tread work has proved very satisfactory in improving our streets.

W. S. HARVEY,
City Engineer.

Albany, Ore.

THE streets of Albany are generally in good condition. For the bituminous streets a temporary repair is made with a squeegee coat of grade D asphalt and crushed rock screenings where numerous hairline cracks occur. Where heavy traffic has ruptured the pavement, it is repaired by removing the broken sections and placing an 8-inch course of good concrete.

On the lighter types of pavement and on the oiled macadam streets, a regular patching outfit consisting of a four-barrel heater, trucks and brooms is used. For winter patching we use a heavy cut-back asphalt, which is heated and applied at about 250 degrees F. and covered with crushed stone. The asphalt kettle is equipped with a 1-hp motor, a 1-inch pump, and a 5-foot 10-inch nozzle spray bar, which works very well in reinforcing the longer stretches of streets.

Little relief labor has been used in the city work, and unless there are some definite projects soon, very little relief labor will be used in Albany in the coming year. Most of the relief labor in Albany has been taken care of by the county on several road projects, and transportation has been supplied by the county.

WALTER W. LARSEN,
Linn County Engineer and City Engineer.

Columbus, Ga.

ABOUT 40 per cent of the streets in Columbus are paved. The rest have dirt or clay gravel surfaces and have been maintained in fair average condition by machining. The paved streets are in fair condition. Cuts, cracks, sinks, etc., are repaired, but many of the pavements are old and require surface treatment or renewal. Because of the lack of funds no work of this kind has been possible; hence the rapid depreciation.

In general, we make repairs with the same material as the original pavement, excepting old brick, where repairing with asphalt laid cold is fairly satisfactory. The work is done by the regular city force. So far no approval has been given here for the use of WPA labor on maintenance work. Next year's budget has not yet been worked up, but there is little prospect of more money being available for maintenance service in 1936.

H. W. RATTRAY,
City Engineer.

Columbus, Ohio

OUR streets, generally speaking, are in fair condition, although they did not have the degree of maintenance during 1932-35 which they should have had. The chief reason for this was the diversion to other purposes of funds normally used for this work, because of economic conditions. We have carried on our maintenance work, although curtailed, and have been able to take care of the worst conditions with the regular forces.

Relief labor has been used, under the various brackets of work relief, CWA, FERA, and now WPA, to the extent of grading, surfacing with cinders, gravel and stone from city-owned quarries, and ditching on unimproved streets and alleys, but not on maintenance work.

During 1936 we hope to be able to apply the gasoline and tag tax monies to the maintenance work, for which purpose it is intended, otherwise many of our well-paved streets will suffer great damage.

P. W. MAETZEL,
Chief Engineer, Division of Engineering and Construction, Department of Public Service.

Minneapolis, Minn.

WE have been able in spite of the depressing times, the CWA, ERA, PWA, WPA, etc., and the delinquent taxpayers, to maintain our streets in a fairly good condition. The principal reason, I believe, is because some ten years ago we stopped using dust palliatives and started using a 50 per cent asphaltic base oil of Mexican origin. We now have a heavy mat of excellent material, so that it is only necessary now to tear up the streets every other year, or even every third year in many cases.

The useful work accomplished with ERA help has been very small. We have done our weed cutting, dump cleaning, and some street grading under this plan, but no regular street maintenance work. We expect to carry this same policy into 1936 and, with the promised help of the WPA, should have the streets and alleys in excellent shape again by the end of the season.

F. T. Paul,
City Engineer.

Hinsdale, Ill.

WE carry out a routine maintenance program and never allow any deferred maintenance, thus keeping our streets in very good condition. The asphalt streets are surface-treated at least once every four years. The concrete streets are crack-filled every year, and the necessary utility cuts repaired promptly. The macadam streets are graded whenever required. All work is done with village forces. The 1936 plans call for a continuance of this program. In the surface treatment of the asphalt streets, we purchase the bituminous material and the pea gravel delivered and spread. The village furnishes all other labor and tools. The cost per square yard for such treatment averages 4.5 cents.

R. S. Hopkins,
Commissioner of Public Works.

Worcester, Mass.

THE era of low budget has been sharply felt in our maintenance account, which has been cut to the core. Relief labor has been applied to new construction, and as a result we have a number of the main arteries of the city in first-class condition, brought about by the use of asphalt penetration and partly financed by the Federal Government, with the work done by the regular city forces and relief workers. The amount of relief work, which is not efficient, is hard to estimate.

The little maintenance that we have been able to carry on has been mostly in the form of cold patch work applied where absolutely necessary. Plans for 1936 cannot be formulated until the amounts allotted by the Mayor and the city government to the different accounts have been determined, probably not before April, 1936.

Ralph G. Lingley,
City Engineer.

Des Moines, Iowa

OUR streets are in good condition. By keeping a crew of men employed on an average of three days a week and preparing repair material in a small asphalt plant, we have been able to continue our maintenance during this era of low budgets.

Each year the Council makes an appropriation for street repair. The same amount has been used for years. The amount appropriated for 1935 for street repairs was $27,906.34. No relief labor is used for street repair. Plans for 1936 have not been completed, but they probably will be the same as in previous years.

John W. Budd,
City Engineer.

Lake Forest, Ill.

THE streets of Lake Forest are in excellent condition, owing to continuous and careful maintenance. The large percentage of our streets are macadam base with some sort of bituminous surface, also some brick and concrete streets. The city of Lake Forest believes that the most economical way to have a good pavement surface is to keep the small holes repaired and to surface-treat a pavement before it has deteriorated to the point that expensive repairs are necessary. The maintenance of streets is done by the city's regular Street Department. No relief labor has been used for this work. We always keep our street budget as low as possible but sufficient to keep the pavements in good repair.

Neil N. Campbell,
City Engineer.

Boise, Idaho

THE business streets of Boise are paved with a bituminous pavement, as are also the principal streets leading out to the surrounding sections of the state. Boise is fortunate in having an abundance of sand that packs very hard under traffic, and for years the maintenance of streets in the residential sections has consisted in surfacing them with this sand. This has formed a good foundation for oiling the streets with a road oil and surfacing with 30 to 40 pounds of crushed 5/8-inch gravel.

About six years ago an engineer from California came here and demonstrated the value of oiling and graveling our residential streets. The street is first bladed smooth and then treated with a light road oil to keep the dust down. As soon as the oil has soaked in, a treatment of 1/3-gallon of heavy road oil is given, and, immediately following, the crushed gravel is spread and rolled. Streets so treated are dustless and require but but very little maintenance.

If the foundation is not compact, the oiling will ravel out and require replacing. Since the first oiling, we have added to the number of streets so treated as fast as they were prepared properly, with the result that nearly all streets in the older portion of our city have been oiled. This treatment is preferred by many for driving over rather than the paved streets. The only criticism that I have of oiling is that many of the streets were not properly graded and concrete gutters installed before the oiling began. The continual resurfacing with sand has made the crown of the streets too high, but the Council does not want to go to the expense of grading the streets properly and installing concrete gutters, as should have been done.

C. C. Stevenson,
City Engineer.

New Brunswick, N. J., has been allotted 2 cents per square yard for pavement maintenance and, using its own forces and equipment, with an artificial cold mixture resembling rock asphalt, has done a creditable job. They don't use relief workers, because to get the most out of this kind of maintenance, skilled labor is required.

Water Meters Reduce Costs by Stopping Rise in Water Consumption

The Story of Cali, Colombia, S. A., 1931-1935, and a Few Words About "Hunting"

THE threat of a rapidly increasing consumption of water which would cripple the new modern rapid sand filtration plant in Cali, Colombia, was checked effectively by the installation of meters. Not only was the increase stopped, but a very material reduction below the consumption of water prior to the construction of the filtration plant resulted.

The modern rapid sand filtration plant was placed in service in Cali in November, 1930. In his first report to the Manager of the Water Works in 1927, George C. Bunker, consulting engineer, Panama, R.P., recommended the metering of all services before filtered water became available, in order to reduce the great waste of water. The capacity of the filtration plant was based on a per capita consumption of 66 gallons with all services metered. By September, 1932, only two years after filtered water was available, the average daily consumption had increased to 9.6 mg, and the maximum daily consumption to 10.22 mg. As a result, the normal capacity of the filtration plant, 8.0 mgd, was exceeded, and through 1932 it was necessary to add each month from 3 to 9 per cent of settled water to the filtered water to meet the consumption demand, although the plant was at that time being operated at 10 per cent above capacity.

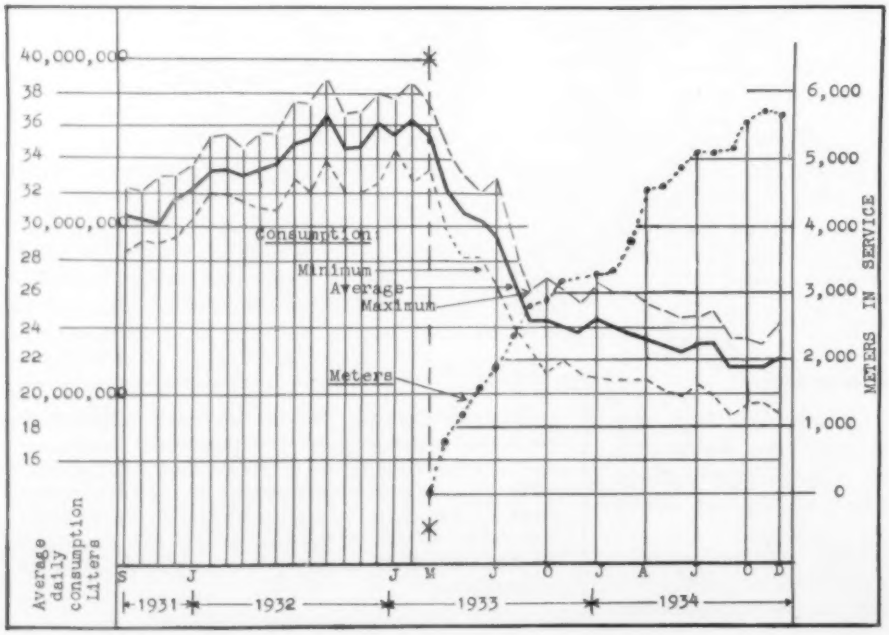
House-to-house inspections to control the waste and leakage were tried, but they were ineffective in reducing the consumption because of certain local conditions. Finally it was decided to adopt the engineer's original recommendation to meter the services, and the work was started in April, 1933.

Metering Effective Immediately

In May, 1935, with 17.8 per cent of the services metered, the reduction in the consumption was sufficient to stop the addition of settled water to the filtered water. At the end of September, 41 per cent of the services in use had been metered and the average daily consumption of water had been reduced 31 per cent as compared with the consumption in March, 9.34 mgd. At the end of December, 45.5 per cent of the services in use had been metered, the average daily consumption of water had been reduced 33 per cent as compared with March, and there were 331 additional services in use.

The installation of meters was continued through 1934, but, owing to the unfavorable rate of exchange, the total number installed was less than during 1933. At the end of October, 1934, 69.6 per cent of the services in use had been metered and the average daily consumption of water had been reduced 45.3 per cent as compared with March, 1933. During November and December the average daily consumption increased slightly, with the result that during December it was 5.88 mgd, or 38 per cent less than it was during March, 1933. At the end of December, 1934, 71 per cent of the services in use were metered and there were 636 more services in use than at the end of December, 1933, and 967 more services than at the end of March, 1933, when the installation of meters was started.

On the assumption that the population of Cali was 90,000 at the end of 1934, the per capita consumption of water was approximately 64.5 gallons. During the last



PUBLIC UTILITIES, CALI, COLOMBIA, S. A.: VARIATION OF CONSUMPTION OF WATER BEFORE AND AFTER INSTALLATION OF METERS

months of 1934, the total volume of water supplied through meters was approximately 84.6 mg per month. The Manager of the Water Works estimated that 60,000 people out of a total population of 90,000 were supplied with water through the meters and that the daily per capita metered consumption was 43.8 gallons.*

Benefits of Metering

The benefits resulting from the reduction in waste and leakage of water by the installation of meters in Cali, are: the addition of three filters to the filtration plant was postponed indefinitely; the addition of settled water to the filtered water was stopped completely; the cost of the chemical treatment of the water was reduced by the reduction in the consumption and by being able to shut down the plant during periods as long as four hours when the turbidity of the raw water was very high following heavy rains on the watershed, and supplying filtered water to the distribution system during this period from the storage reservoir; an increase in pressure in the central section of the distribution system from 30 to 60 pounds per square inch during the daytime; the operation of the filters at their normal rate; the maintenance of sufficient water in the storage reservoir with seven filters under normal conditions, thus permitting one filter to be cut out of service for cleaning the upper 3 inches of sand or for other purposes.

Minimum Allowances Too High

The meter rates in Cali, Colombia, are divided into three classes of services as follows:

First class: Includes factories, hotels and cafés of the highest grade, office buildings and apartments, and industrial establishments selected by the Board of Administration or by the Manager of the Water Works. Consumers in this class pay 5.00 pesos† ($4.83) per month, with the right to use 100,000 liters (26,418 gallons) of water.

Second class: Includes residences valued at more than 1,000 pesos ($965); hotels, cafés and factories of the second grade; apartments, important stores and private schools, which pay 2.00 pesos ($1.93) per month, with the right to use 60,000 liters (15,850 gallons) of water.

Third class: Includes houses valued at 1,000 pesos ($965) or less; small apartments and shops. These pay 1.20 pesos ($1.16) per month, with the right to 45,000 liters (11,880 gallons) of water.

These are minimum charges and must be paid whether or not the specified volumes of water are consumed. If the consumption exceeds the volume specified, the services of the first class pay 4 centavos (3.9 cents) per 1,000 liters (264 gallons) for the first 100,000 liters (26,418 gallons) in excess, and 3 centavos (2.9 cents) for each 1,000 liters above that amount. Classes 2 and 3 pay at the rate of 3 centavos (2.9 cents) for each 1,000 liters in excess of the specific allowance per month.

A comparison of the rates for the second and third classes shows that a slight reduction is made in favor of the occupants of houses of low value, 1,000 pesos ($965) or less, with the idea that their incomes are less than those of the occupants of the houses in the first class. This difference in rates is based on the theory that occupants of expensive houses should pay more for water than those in cheaper houses. This is a common method of favoring the poor people in South American cities.

The first set of meter rates specified a maximum allowance of 50,000 liters (13,210 gallons) for services of the second class, and of 36,000 liters (9,510 gallons) per month for services of the third class. As a result of the protest made by some of the people in the above classes, that the rates were excessively high and the maximum allowances were too low, the Municipal Council, contrary to the recommendations of the Board of Administration, increased the allowance for the second and third classes to 60,000 liters (15,850 gallons) and 45,000 liters (11,890 gallons), respectively.

During 1934, the average monthly metered consumption per service of the second class exceeded 50,000 liters (15,210 gallons) only during one month, the excess amounting to only 190 liters (2,318 gallons), and during the other eleven months it ranged from 46,630 (12,200 gallons) to 49,910 liters (13,180 gallons). The average metered consumption per service of the third class never reached 36,000 liters (9,510 gallons) in any month, the highest monthly consumption being 27,600 liters (7,300 gallons), and the lowest, 20,490 liters (5,420 gallons). The average metered consumption per service of the first class exceeded the allowance during each month, ranging from 446,630 liters (117,900 gallons) in January, with 143 meters in use, to 520,830 liters (137,500 gallons) in December, with 178 meters in use.

From these figures it is evident that the allowances of 50,000 liters (13,210 gallons) and 36,000 liters (9,510 gallons) per month, originally established for the second and third classes, respectively, were high enough and met the legitimate needs of both classes of consumers. The arguments that the poor people would not have sufficient water for hygienic purposes were proved to be entirely wrong, for they never used the entire allowance even during the warmer months.

Should Allowance Be Increased?

The danger of increasing the allowance lies in the fact that it may be set so high that the meters no longer serve to reduce the waste of water, but only serve as chambers through which the water passes. It is interesting in this respect to note that the average monthly metered consumption through the services of the third class increased from 20,490 liters (5,420 gallons), with 750 meters in use in January, 1934, to 25,570 liters (6,760 gallons), with 2,088 meters in use in December, 1934, an increase of 5,080 liters (1,342 gallons); and to 30,750 liters (8,140 gallons), with 2,966 meters in use in August, 1935, which made the second increase of 5,000 liters (1,321 gallons) in the consumption of water by this class during the first eight months of 1935.

The average monthly metered consumption through the services of the second class increased from 46,630 liters (12,320 gallons), with 2,420 meters in use, to 49,910 liters (13,200 gallons), with 3,271 meters in use in December, 1934, an increase of 3,280 liters (868 gallons); and to 53,470 liters (14,110 gallons), with 3,527 meters in use in August, 1935, which made a second increase of 3,560 liters (943 gallons) in the consumption of water by services of the second class during the first eight months of 1935.

* The report of F. Ospina B., Manager of the Cali Water Works for August, 1935, shows that of the 8,327 services in use at that time, 6,778, or 81.5 per cent, were metered. The average daily consumption during August, 1935, was 5.24 mg. This, according to George C. Bunker, consulting engineer, represents the minimum consumption obtainable in Cali with meters, because the population is increasing steadily.

† Note—The value of 1 peso at parity used in this text is 96.5 cents U. S. money. In August, 1935, however, the rate of exchange was such that a peso was worth 56.5 cents U. S. money.

"Hunting"

It is feared by those who are interested in reducing the waste of water by consumers that, as time goes on, they will gradually increase their consumption to the total of the allowance for each class as they learn that it is unnecessary to be so careful about closing the faucets immediately after drawing water for legitimate purposes. This procedure has been aptly termed, "hunting" for the maximum allowance of water. The remedy lies in reducing the allowance of water for each class, or setting it at a volume which experience shows is ample for legitimate purposes. This is difficult because members of the Municipal Council will naturally be threatened with a loss of votes and results unfavorable to their political future. Mr. Bunker has found that the allowance of water for metered services in other cities in the tropics has been set so high that the meters have failed to reduce the waste of water by the consumers.

ACKNOWLEDGMENT.—This article has been prepared from material originally presented before the New England Water Works Association by George C. Bunker, Panama City, R.P., and from additional data from other sources.

Building Street Intersections without Bumps

By EDWARD E. BAUER
Assistant Professor of Civil Engineering,
University of Illinois

THE riding quality of city pavements is often seriously impaired because of improper selection of the grade line through intersections. The most common fault is the raising of the center of the intersection, based on a false notion that it is necessary in order to provide quick drainage during rainstorms. Water will not stand to a depth that is annoying to traffic, even on a perfectly flat surface, so there is no real need to raise the center of the intersection above normal in order to provide drainage.

Another bad practice, when a wide pavement intersects a narrow one, is to bring the grade line on the center line of the narrow side street straight into the center of the intersection to meet the grade line on the center of the wide pavement. If the grade line on the wide pavement is raised above normal in addition, there is serious interference with a smooth ride through the intersection. The center-line grade line on the narrow side street should meet the surface of the wide pavement some little distance from the center line as shown in Fig. 1, the exact location depending on widths and crowns. Traffic on the wider street should be given preference over that on the narrow street, in the matter of comfort of riding, since its volume is greater. The arrangement suggested, however, should cause no unpleasantness to passengers in vehicles crossing the wider street.

Sequence of Pouring an Intersection

How can exact control of the surface of an intersection be secured? Place only part of the intersection at a time. The writer used the following method on some work a number of summers ago and found it the most satisfactory of the various methods tried.

The discussion concerns a concrete pavement, but the same ideas can be used in placing the base course for any other type of wearing surface. Let us consider the average residential pavement built to accommodate three lines of traffic, with a total width of 26 to 30 feet between curbs. Pavements of these widths can be built most easily between intersections one-half at a time. This practice necessitates the setting of forms to grade along the center line, and as the work approaches an intersecting street a chalk line can be stretched across the intersection in both directions at the proposed elevation of the top of the pavement along the center lines. When the proper grades have been selected, forms can be set and rechecked before any concrete is placed.

Many times it is necessary to introduce vertical curves in the grade line of the cross-street, from A to B in Fig. 2, owing to the fact that the side street is on a sharp grade away from the main street. The grade line from A to O and B to O should not be a straight line unless conditions warrant it. Point C might be too high or too low, depending on the relative elevations of O and B. The setting of the forms to grade in both directions through the intersection controls the surface where it needs to be controlled most.

In placing concrete, the two opposite corners can be built one day, and the other two the next day. The lining-up of the expansion joints offers no problem, since they can be lined in with the edge of the curb or the curb-and-gutter section. In this method of building intersections the area of concrete being placed is relatively small and it is possible to have the concrete on both sides of the expansion joints soft enough to be shaped at the same time, which is a decided advantage in securing a smooth riding

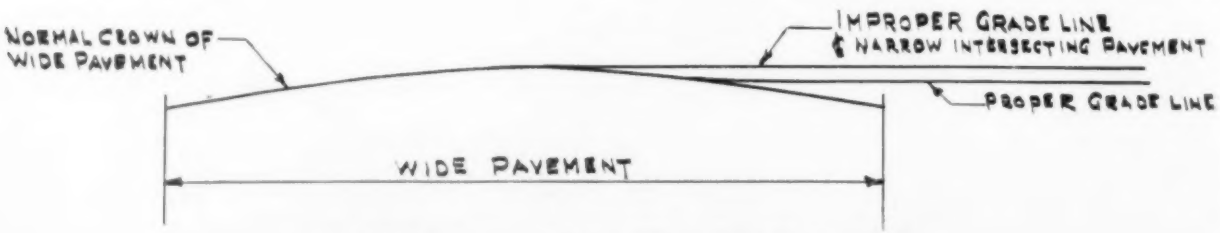


FIGURE 1. PROPER AND IMPROPER INTERSECTION OF GRADE LINE
The grade line on the center line of a narrow side street should not be carried to the center of a wide pavement, but should be blended into the surface of the wide pavement some distance away from the center line

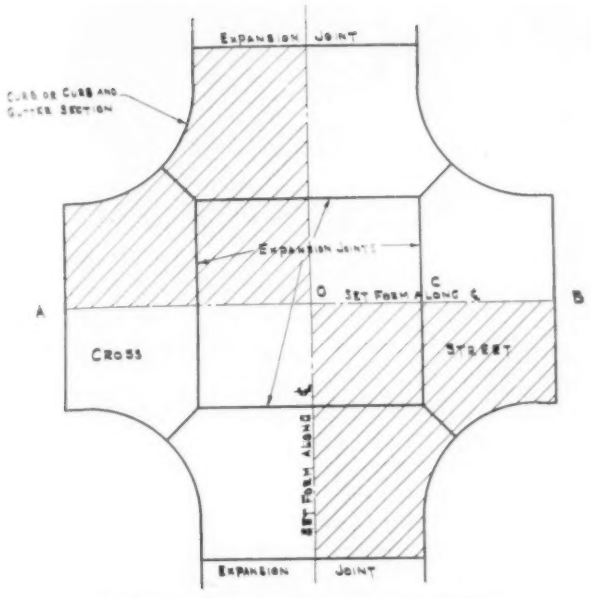


FIGURE 2. LAYOUT OF A TYPICAL INTERSECTION OF RESIDENTIAL STREETS

The shaded portions of the intersection indicate those which can be placed one day; the rest on the day following. By setting forms along the center lines, the surface of the concrete can be controlled more readily, with the result that a smoother riding intersection can be built

surface in all directions.

Procedure with Wider Pavements

In cases where the pavement is wider than can be built one-half at a time, the same general procedure can be followed. The forms set longitudinally along the main street should be set through the intersection, but the grade line along the center line of the cross-street must not be forgotten. It should be studied as in the previous case. It may take a little longer to place all the concrete in a larger intersection, but the whole job need not be slowed down, since a program can be worked out which will permit continuous work for the contractor.

State Engineers in the City

Within the past few years state highway engineers have enlarged their field of work to include design and construction of city pavements. In some instances they have not recognized the fact that a city pavement is different from one built in the country, and have used country practices in the city. One of these practices is to build first the regular country slab along the center of the street and across intersecting streets, and then place the necessary additional slab and curbs. The grade line from A to B (Fig. 2) then has two dips in it at the edges of this center strip. It is true that these dips are not large, because of the flat crown used on country pavements. The placing first of the center 18 or 20 feet across the intersection may complicate the planning of the various grade lines on side-hill construction, and the hills need not be steep to warrant tilting of the intersection. It has always seemed to the writer that the curb grade lines should be established first at intersections, because of the existing conditions that must be met. The pavement then can be built with reference to the curb, but if the slab is placed first, it is much more difficult to visualize the layout and secure the proper grades on the curb.

Conclusion

In conclusion, (1) the riding qualities of intersections determine to a large extent the rideability rating given a city street by the public; (2) greater care should be exercised in shaping the surface of intersections; and (3) better control of the surface during construction can be secured by dividing it up into smaller units, as suggested in Fig. 2.

Less Tooting of Horns and Greater Safety of Traffic

To the Editor of THE AMERICAN CITY:

The efforts now being made in some of our American cities to reduce the tooting of motor horns should be greatly encouraged by a knowledge of French, English and Italian experience.

Paris and London led the way in reducing the exasperating and usually unnecessary use of the motor horn. For some years past, both cities have suppressed motor horns at night, and Paris, on the Champs-Elysées, in the day also. Lately, Italy also, where traffic has been well regulated in other respects for several years, decided to follow the example of Paris and London, and stop motor horns at night. On May 3, 1934, all Italian municipalities were accordingly authorized to forbid sound signals at night. Rome started first, then Milan, Naples and other cities followed. The authorities found it so satisfactory that on December 15 of that year it was decreed that no motor horns were to be used night or day within a certain number of kilometers of cities.

This does not mean that a motor horn shall not be used in a traffic emergency to avoid an impending accident. In narrow streets also, many of which have no sidewalks, the drivers gently tap the horn sufficiently loudly so that pedestrians ten or fifteen feet ahead can hear and step aside. These gentle tappings are less irritating than loud blasts right behind one, and are obeyed with far better grace.

Suppressing the motor horn, to the surprise of most people, has not increased accidents, but from what we can learn so far has considerably reduced them. It has made drivers more careful and pedestrians more considerate. The next step in reducing the noise of traffic should be a determined fight against squeaky brakes, cut-out and accelerator noises and the rattling of loose parts, and, last but not least, not allowing vehicles in bad order to be used at all on highways. On May 31, 1935, it was announced that in Italy motorcycles must thereafter be equipped with effective silencers.

On July 10, 1935, there began a "Silence Week" in Zurich, with a decrease of accidents reported.

In September, Finland silenced motor horns, street-car bells, traffic whistles, hand-organs and the cries of hucksters, newsboys and sidewalk orators.

On October 1, the campaign to prohibit unnecessary noise was begun in New York. We have come late into this campaign, but that should not prevent the work from being done effectively, especially as we have had the example of other countries to go by.

WILLIAM PHELPS ENO.

Saugutuck, Conn.,
January 14, 1936.

EDITORIAL NOTE.—The writer of the foregoing letter is well known to many readers of THE AMERICAN CITY as founder and Chairman of the Board of the Eno Foundation for Highway Traffic Regulation, Inc. It may not be so generally known as yet that on December 26, 1935, Mr. Eno was promoted from Knight to Officer of the Legion of Honor of France, in recognition of his aid in suppressing noise and controlling traffic.

Making Assets of Tax-Delinquent Lands

By **FRANK MOORE**
Executive Secretary, Association of Towns of the State of New York

ALTHOUGH the procedure for the enforcement of tax liens against real estate is not uniform, the ultimate recourse in every state is the confiscation of the property itself. In normal times, this drastic remedy is rarely availed of.

But these are not normal times. The collapse of the post-war real estate boom, the over-enthusiastic development of suburban areas and the economic conditions of recent years, have combined to produce an acute situation wherein the tax enforcement agencies, of necessity, have exercised this final remedy.

Peculiarly enough, we find that the tax laws of many states enable an individual to acquire good title to delinquent lands through a tax foreclosure sale or the maturing of a tax certificate, but not the state itself. Thus, the state can convey good title to another, but cannot obtain one for itself.

It further appears that in a number of states the right of redemption persists for an unreasonably long period, during which the state must hold the land without ability to use or dispose of it. In some states, delinquent lands must be sold at public sale for any price obtainable in satisfaction of tax liens.

Unfortunately, some property owners have abused their rights. They have deliberately failed to pay their taxes, and, subsequently, re-acquired their properties at public sales, for amounts less than the accrued taxes.

Common sense would suggest that the tax laws of every state should enable the state to acquire for itself good title, for all purposes, to tax-reverted lands. In New York State we are now possessed of the statutory means of obtaining incontestable title. Assuming the necessary constitutional and statutory changes in every state to confer upon their tax-enforcement agencies similar power, we can consider the possibilities in tax title lands.

In levying taxes for the purposes of a given unit of government, we assume the collection of 100 per cent of the amount levied. Experience proves that some of the persons liable will fail to pay. To bridge the gap between the amount of taxes levied and the portion collected, it has been the custom to hold tax sales and to sell some interest in, or lien upon, the delinquent lands, to private purchasers. Even in normal times, the purchasers at such tax sales selected only the parcels which, in themselves, offered adequate security for the sums paid. The tax enforcement agencies were obliged to bid in the remaining parcels. These latter properties, therefore, failed to contribute to the support of government, and, for all practical purposes, were valueless, or "dead." During recent years, there has been a dearth of buyers at tax sales, and the amount of the dead property has been accordingly increased.

Assuming the legal ability to remove these dead properties from the tax rolls, through the acquisition of title by the state or its subdivisions, it would appear advisable that such power be exercised. When title is perfected, the lands should be classified as to their usefulness. Properties capable of producing sufficient taxes in private use should be disposed of and restored to the tax rolls, to again contribute to the support of government. Properties incapable of supporting the normal tax burdens should be retained and thereby the dead valuation eliminated from the assessment rolls. . . .

Planning for Future Use

It is suggested that the tax-enforcement agencies of government should prepare comprehensive plans for future development, with particular emphasis upon the lands required for such purpose. These plans should vision a period of perhaps ten or more years into the future.

At the same time, the state or its subdivision should classify its tax-reverted lands as to their particular usefulness in relation to the plan adopted. For example, there should be no great difficulty in determining the suitability of lands for recreational purposes, such as parks and playgrounds. Other lands could be set apart as rights-of-way for highway extensions, or for the construction of sewer, water and drainage systems, and other utilities.

The location of incinerator and disposal plants could be determined in advance. It is probable that some properties could be designated as sites for public buildings, including hospitals, penitentiaries, and even schoolhouses. Some lands might be useful to preserve a source of supply for municipal water systems. Other lands might be set apart for reforestation purposes. Additional uses would be determined from local requirements.

Concretely, it is suggested that the states and their tax-enforcement agencies be enabled, through appropriate revision of their tax laws, to effectively acquire title to tax-delinquent lands and to use such lands for all purposes of government.

The real estate capable of supporting normal tax burdens should be restored to a "live" assessment basis as promptly as possible, and the remaining lands definitely retained by the state or its subdivisions, for future governmental use.

By the elimination of dead valuation from the assessment rolls, we can expect the stabilization of tax revenues. This will relieve the stress of governmental and municipal finance. We can reduce, materially, the cost of future necessary governmental development, and possibly avoid some unwise improvements initiated as a means of unloading high-priced real estate upon the public.

We shall substitute certainty for uncertainty in the operation of our tax laws. After all, the steady, dependable flow of taxes is as essential to our governmental and municipal well-being as the flow of blood to our human existence.

EDITORIAL NOTE.—The foregoing paper is published with the permission of the National Municipal League. Originally presented January 21, 1936, over a NBC-WEAF network in the YOU AND YOUR GOVERNMENT series under the auspices of the Committee on Civic Education by Radio of the National Advisory Council on Radio in Education and the American Political Science Association.

As an alternative to Mr. Moore's proposal that tax-enforcement agencies prepare plans for future development of tax-reverted lands, THE AMERICAN CITY suggests that such planning might well be the function of municipal, county or state planning boards, where such exist.

Resurfacing with an Asphalt-Gravel Mix

By W. H. QUIGLEY

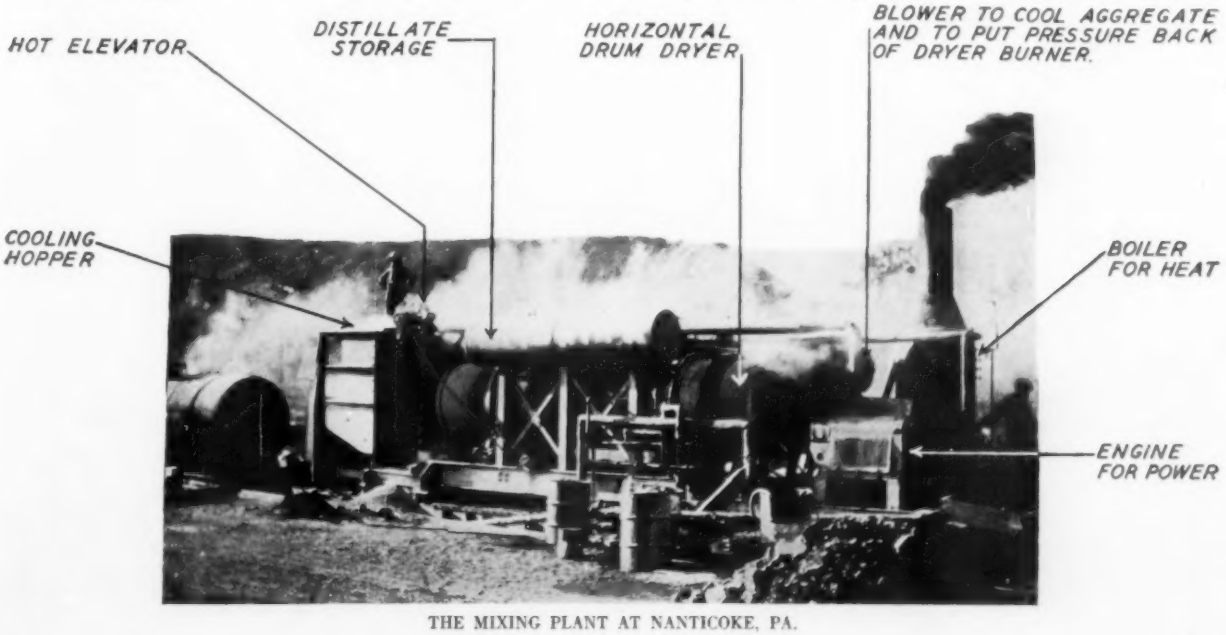
USING gravel as aggregate in the asphalt mix, Nanticoke, Pa., has resurfaced approximately 20,000 square yards of worn brick streets. Sheet asphalt and asphaltic concrete surfacing in which graded sand or broken stone constitute the mineral aggregate are quite commonly used on top of old, rough streets. The use of gravel aggregate, however, is unusual in this type of work.

THE ASPHALT-GRAVEL PLANT MIX WAS UNIFORMLY DISTRIBUTED WITH A SPREADER BOX

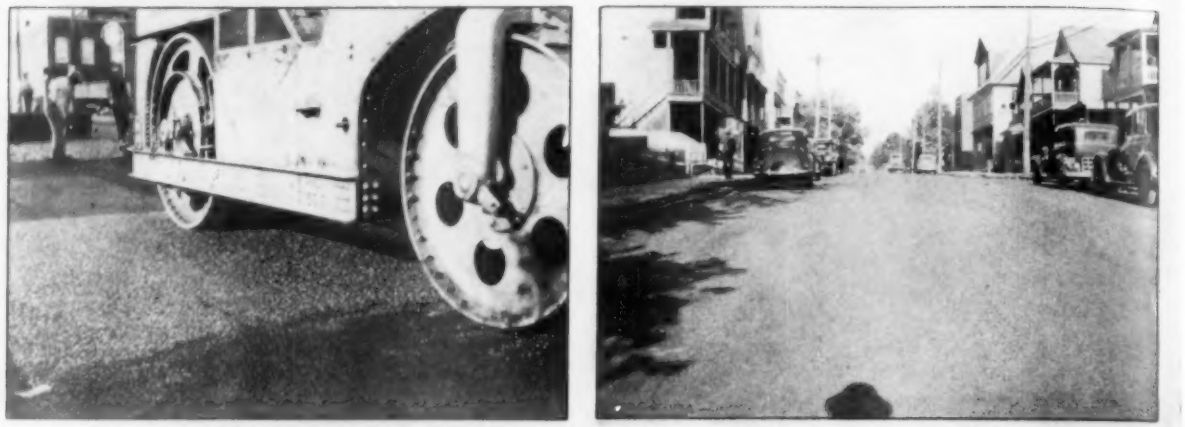
The Mixing Plant

A special type of plant was used at Nanticoke for preparing the asphalt-gravel mix. The gravel aggregate is fed into the drying drum from the stock pile by means of a bucket elevator. In the drying drum, which is horizontal, the aggregate is moved forward by a system of baffles, which constantly turn the aggregate as it is advanced through the flame which originates at the discharge end of the drum.

From the drying drum, the aggregate is carried to the cooling hopper, from which another bucket elevator lifts it to the mixing system. This is a screw-type conveyor mixer in which the aggregate is first sprayed with a "drier" and then with asphalt. The "drier" may be naphtha or a mixture of kerosene and some other volatile distillate. The worm in the mixing conveyor is a shaft with a steel spiral blade fastened to it. The blade has numerous openings in the edge to assure complete turning of the aggregate and to prevent clogging or jamming. From the mixing conveyor, the coated aggregate drops into the loading con-



THE MIXING PLANT AT NANTICOKE, PA.



EXPERT COMPACTION WITH A TANDEM ROLLER (LEFT) PRODUCED THE NEW NON-SKID ASPHALT-GRAVEL STREET (RIGHT) FROM PLANT-MIXED MATERIALS, IN NANTICOKE, PA.

veyor, where it is again turned over several times on the way to the truck that hauls it to the job.

The control over the amount of asphalt admitted to the mix is by eye. The "drier" and the asphalt percentages are dependent on the amount of aggregate passing a given point in a given time, additional jets being cut in or out as required. All sizes of aggregate from dust to maximum-size coarse aggregate are fed into the drying drum at the same time from the stock pile by the bucket conveyor. This arrangement makes it necessary to combine all sizes before delivery to the plant.

Approximately 3,200 tons of this Texaco-asphalt and gravel mix were required to resurface the various streets improved. In bringing the old pavements to grade, it was necessary to fill depressions 5 and 6 inches deep with the asphaltic mixture. When this preliminary leveling course had been laid, a wearing surface was spread and rolled to a compacted thickness of 2 inches.

George Powell, of Nanticoke, was the general contractor. As sub-contractor, Bilt-Rock Roads, Inc., constructed the asphalt-gravel surface. The work was in charge of Stanley Dropeski, Chairman of the Street Commission.

For More Beaches in Public Ownership

CALLING attention to the totally inadequate extent to which, as yet, provision has been made for public access to and use of bathing beaches, George Hjelte, Recreation Superintendent of Los Angeles, at the December, 1935, convention of the American Shore and Beach Preservation Association, urged additional Federal aid in the solution of this important leisure-time problem:

"Had the founders of our country been able to anticipate the value which the beaches now have as a recreation and health-giving asset," said Mr. Hjelte, "and had they been able to predict the degree to which the general public use of beaches would be ultimately restricted by private ownership, no one could question that they would have reserved in public ownership not only the tide and submerged lands, but also a strip of upland along our entire coast. Private access to this strip for private purposes not inconsistent with the public welfare could then have been provided for in the same manner that private uses of the publicly owned water and submerged lands is now permitted. Unfortunately, prophetic vision was inadequate in those times, and it is now almost a practical impossibility to correct the situation except at great cost, and then only to an ameliorative degree. . . .

"The beaches are a recreational asset not only to those who permanently reside near them, but to those also who reside inland. Of the 48 states of the Union, only 21 have ocean beaches. The great forests and national monuments like Yellowstone Park have been regarded as national assets, and to insure their protection for and use by the whole nation they have been incorporated in the National Park System. The beaches of our coastal states should be viewed as national and not as local assets. Local governmental jurisdiction should consider that they hold these assets in trust for their own posterity and also for the posterity of the whole nation. Indeed, a logical view compels one to suggest that the most practicable method of insuring the acquisition, protection, and development of well-situated and most useful beaches is for the Federal Government to aid local governments in accomplishing these purposes, if not to actually incorporate some beaches in the National Park System. . . .

"Beach recreation is probably the least expensive of all forms of recreation offered by public agencies. Once a beach is acquired in public ownership and made accessible, the expense of operating it is negligible in relation to the service performed. The annual cost to one city of operating and maintaining five miles of public beach which enjoyed an annual attendance of about eleven million persons was only $45,000, or four-tenths of one cent per person served. Recreation service on neighborhood playgrounds and parks varies in cost from three to five cents per person served.

"It is a known fact that the greatest values in life are found in those things which are the free gifts of nature. The most valuable recreational activities of mankind are those which require no extensive preparation and which are most simple and natural, those which are inherent in the nature of human kind. Although we may go to no end of pains and expense to provide artificial means of recreation which has relatively limited value, we take for granted opportunities for recreation which abound about us; and, taking them for granted, we fail to notice invidious forces and events which tend to deny them to us. The beaches would afford, if preserved and protected, the means of life-giving recreation for millions of our people and for all posterity."

Treated Water Filtered in New Pressure Plant

Extension of Existing Gravity Plant Completed at New Brunswick, New Jersey

By DANIEL M. VAIL
Sanitary Engineer

THE gravity filtration plant in New Brunswick was constructed in 1916 with a capacity of eight million gallons. It consisted of a plain sedimentation basin, coagulation basins and eight filters of 1,000,000 gallons capacity each, together with pumping facilities and a standpipe. The plain sedimentation basin had a capacity of 8,000,000 gallons, and the old coagulation basins a capacity of 400,000 gallons. The storage capacity for filtered water amounted to 1,200,000 gallons, including both the clear well and the standpipe.

This plant, which was put into operation early in 1917, began to be inadequate during the World War, when a large increase in manufacturing made it necessary to run the plant at maximum capacity and sometimes at considerable overload. Since that time the consumption of water has decreased very little.

Plans for New Plant

In 1930 it became evident that the plant could not operate under the existing load for any period of time to come. As a first step to increase the productive capacity of the plant, the filter bottoms were entirely remodeled. This did not, however, relieve the overloaded condition, and it became necessary to provide funds for an additional amount of filtering capacity. These funds became available through the Public Works Administration in 1934.

Source of Supply

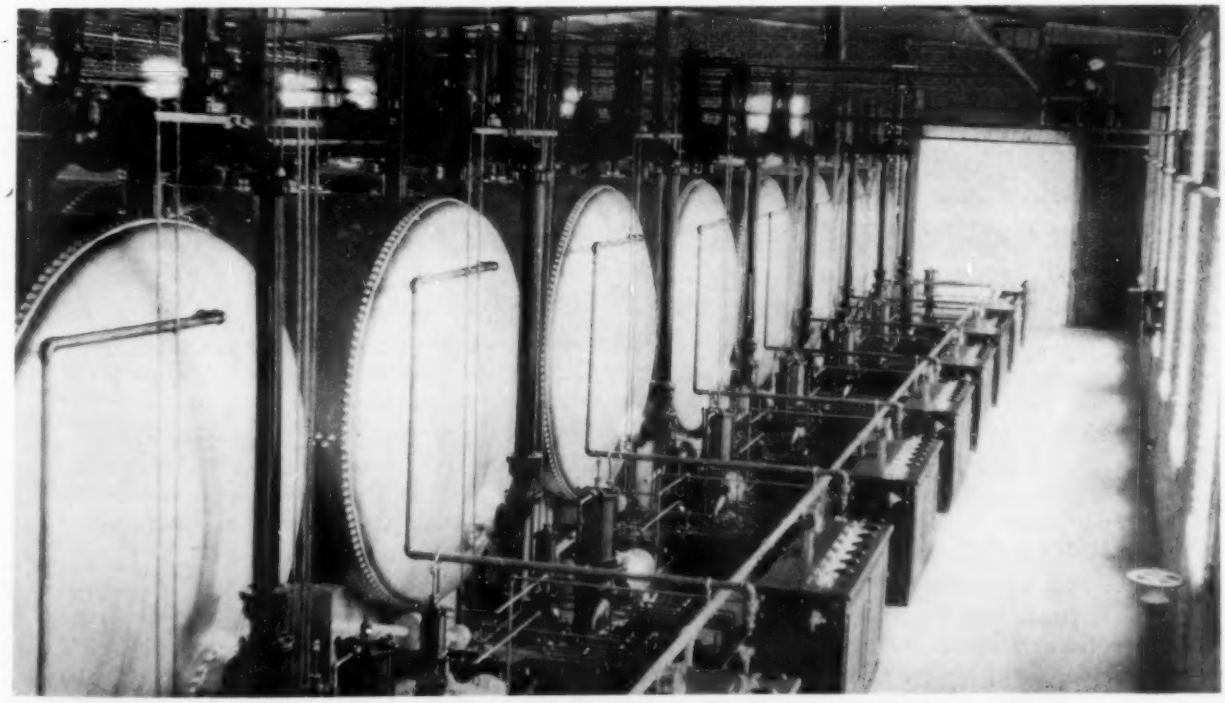
The water used in the city of New Brunswick is taken from a stream known as Laurence Brook. Three dams have been constructed on this stream, providing storage for a six months' supply of water. The water is very soft, colored and is difficult to treat because of high color and low turbidity. An average analysis of the water is:

Color	130 to 150 ppm
Turbidity	20 "
Alkalinity	10 "
pH	5.8 to 6.4

As the color, which is an organic residue, is very difficult to treat, constant chemical control is required to produce a good quality water.

Experimental Work

Prior to starting any design work for new construction, a complete experimental plant was set up and operated over a period of two months. This plant, which had a ca-



THE BATTERY OF EIGHT PRESSURE FILTERS RECENTLY INSTALLED AT NEW BRUNSWICK, N. J.
Note the hydraulic valves and operating tables

★

SHE'S A PARTNER IN A GREAT AMERICAN BUSINESS

SHE is one of 850,000 owners of Bell System securities. They are typical Americans—some young, some middle age, some old. They live in every part of the nation.

One may be a housewife in Pennsylvania. Another a physician in Oregon—a clerk in Illinois—an engineer in Texas—a merchant in Massachusetts—a miner in Nevada—a stenographer in Missouri—a teacher in California—or a telephone employee in Michigan.

For the most part, Bell System stockholders are men and women who have put aside small sums for saving. More than half of them have held their shares for five years or longer. More than 650,000 of these 850,000 security holders own stock in the American Telephone and Telegraph Company—the parent company of the Bell System. More than 225,000 own five shares or less. Over fifty per cent are women. No one owns as much as one per cent of the stock of A. T. & T. In a very real sense, the Bell System is a democracy in business—owned by the people it serves.

Over 270,000 men and women work for the Bell System. One person out of every 150 in this country owns A. T. & T. securities or stock and bonds of associated companies in the Bell System.

BELL TELEPHONE SYSTEM

During February we hope you will remember to mention THE AMERICAN CITY

pacity of 9,000 gallons per day, consisted of chemical feed apparatus, mixing tanks or flocculators, sedimentation basins, pumps and pressure filters. The filters were operated at rates varying from 2 gallons per square foot per minute up to 6 gallons per square foot per minute. In all cases, the effluent from the pressure filters was of a quality superior to that being produced in the gravity filters.

The New Plant

The new plant which supplements the old, but is a complete unit within itself, consists of a Dorr flocculator having a detention period of 20 minutes for contact of the chemicals with the water during the mixing process. A new sedimentation basin has been provided, having an 8-hour retention period for settlement of floc. The water from this basin may be delivered to either of the plants. Three DeLaval pumps, of 2-, 4- and 6-mgd capacity, are provided for the new plant.

The 6-mgd pump is hooked up so that it may be used for either the old or the new plant. Eight new pressure filters of ½-mgd capacity each have been installed, thus adding 4,000,000 gallons to the plant capacity, increasing the capacity to a total of 12 million gallons per day. The valves for the pressure filters are all hydraulically operated, and the layout of the filters is such that air wash or water wash may be used independently or together.

Chemical Feed Equipment

The new Wallace & Tiernan chemical feed equipment is laid out for feeding ferric salt and lime. Connections are made with this equipment to give the utmost flexibility to the plant. Chemicals may be fed at any one of five points. The effluent from the new filters is chlorinated with a W & T pressure chlorinator. This unit will pump chlorine solution directly into the line connecting the new filters with the standpipe. It is expected that a much better water will now be delivered to the standpipe, since the filter loading on the existing plant has been greatly reduced. The efficiency of the plant has increased and the use of chemicals has been reduced about 40 per cent.

Cost

The total cost of the entire new layout is $200,000. The reservoir and building were constructed by the Industrial Engineering Co., of New York City, and the filters and equipment by the Roberts Filter Manufacturing Co. All electrical equipment was furnished by the Westinghouse Electric & Manufacturing Co.

Present Status of PWA Projects

OVER 99½ per cent of the new PWA program for the building of works of lasting value was under construction contract or advertisement on January 16. According to reports received by Public Works Administrator Harold L. Ickes, of the 4,166 projects given PWA allotments under the new program, 4,149 were either under contract or had contract specifications advertised, and on many of these construction has begun, while some have already been completed.

These projects called for an expenditure of approximately $744,000,000, most of which is provided by funds raised in the communities to be benefited both by the projects and the employment derived from the construction. All are non-Federal PWA projects. In each instance where allotment was made, the community put up 55 per cent of the cost of constructing a project which the local government itself had selected in order to secure a Federal grant of 45 per cent, thus registering local and Federal cooperation to effect the purposes of the recovery program.

The projects which received allotments were in every state in the Union and selected from a much larger group of applications. PWA received over 12,000 applications from communities declaring themselves desirous of putting up a billion and one-half dollars in their own funds to secure Federal grants of a lesser amount. Owing to lack of funds, allotments could only be made to approximately one out of three of these applicants before the total of something over $300,000,000 in funds made available to PWA for its program was exhausted.

In pushing the new PWA program to its present advanced stage, the organization accomplished in four months what required approximately two years for nearly the same number of non-Federal projects in the original PWA program launched in 1933. This was possible through improved processes, including decentralization of examining divisions, revised contractual procedure and various other simplified processes, together with better national understanding of the purposes and machinery of the program.

All except 8 of the 4,166 projects have cleared through the State Directors' offices into Washington. These projects consist largely of allotments for schools, water works, sewers, etc., to local public bodies such as municipalities, counties, educational and sanitary districts, etc., and individual projects range from a few thousand to many millions of dollars.

Before construction contracts were let or construction specifications were advertised, financial contracts between the Government and the applicants had to be prepared. Over 4,000 such contracts were written by the PWA legal staff and sent to applicants, and all except a few have been accepted. Over 4,000 Treasury Warrants have already been issued to carry out the program.

The above figures refer only to PWA non-Federal projects. In addition to such projects, there is the PWA Housing Program financed with the new funds involving the total of a little over $100,000,000 for 38 housing projects, on all of which contracts have been let.

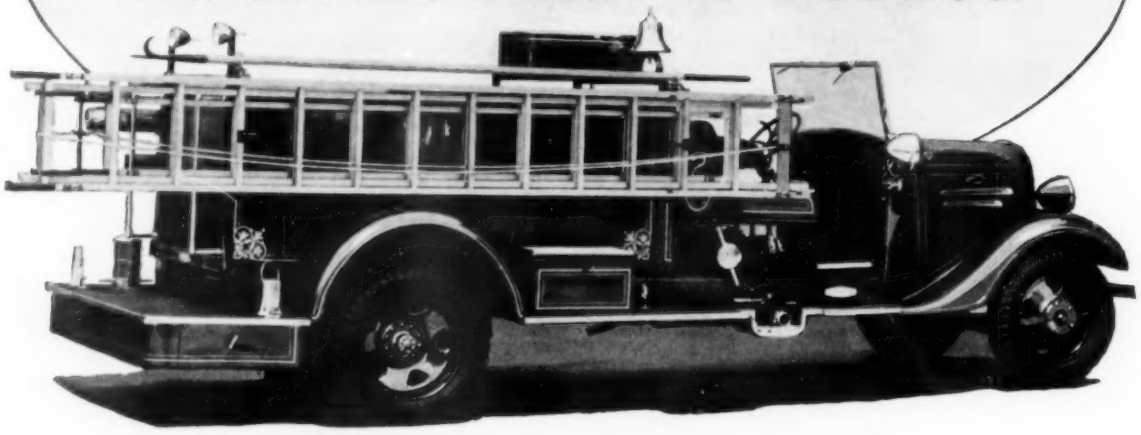
Municipalities to Have Representative in Washington

APPOINTMENT of a permanent full-time representative in Washington, D. C., for the American Municipal Association will make it possible for 5,000 municipalities to carry problems involving cooperation with the Federal Government directly to the nation's capitol. The Washington representative, who has assumed his duties, is Earle D. Mallery, former City Manager of Alliance, Neb., member of the Nebraska State Planning Board, and of the Board of the Nebraska League of Municipalities.

The Association, headquarters of which are in Chicago, is the national federation of leagues of municipalities in 36 states. Members of the leagues are the 5,000 or more cities in those states. Through their national association they are enabled to exchange information on their common problems, and gain advice on all municipal matters.

Growing concern of cities in affairs of the Federal Government, due to events of the past three or four years which make necessary closer cooperation between the two levels of government, is the cause of appointing a permanent Washington representative for the American Municipal Association, which, as Executive Director Clifford W. Ham points out, is concerned primarily with administrative business and in no sense is a lobbying organization.

Chevrolet Fire Trucks DELIVER when ACTION is needed



NEW 1936 MODELS

faster, more powerful, and always dependable

WHEN put to the test, Chevrolet fire trucks can always be depended upon to come through. The smooth, powerful, valve-in-head truck engine gives ready response to starting and quick getaway. It supplies power far in excess of requirements for pumping a high pressure stream of water. The Chevrolet power plant, when used to operate the most popular fire pumps, has been approved by the National Board of Fire Underwriters for 500 gallons per minute. The brakes are new perfected hydraulic brakes—always equalized for quick, unswerving, "straight line" stops. Protection of life and property is too important to risk the continued use of unreliable, slow and out-of-date equipment. Replace it with modern, low-cost Chevrolet units.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

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See your Chevrolet dealer for complete information on Chevrolet trucks and passenger cars for the following municipal motor transport equipment:

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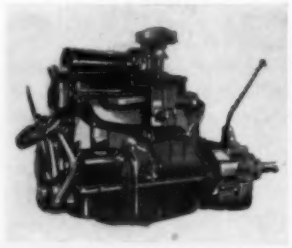
HIGHWAY CONSTRUCTION AND MAINTENANCE
GARBAGE COLLECTION COMPRESSOR UNITS
PARK AND BOULEVARD SERVICE
STREET CLEANING, SPRINKLING AND SNOW REMOVAL

CHEVROLET
A GENERAL MOTORS VALUE

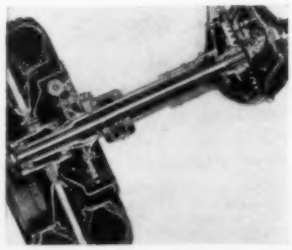
6% NEW GREATLY REDUCED G.M.A.C. TIME PAYMENT PLAN

The lowest financing cost in G.M.A.C. history. Compare Chevrolet's low delivered prices.

NEW PERFECTED HYDRAULIC BRAKES always equalized for quick, unswerving, "straight line" stops.



NEW HIGH-COMPRESSION VALVE-IN-HEAD ENGINE with increased power, increased torque, greater economy in gas and oil.



FULL-FLOATING REAR AXLE with barrel type wheel bearings on 1½-ton models.

Do you mention THE AMERICAN CITY? Please do.

Waste Collection Service on a Fee Basis

A Complete Description of How to Set Up a Workable System

IN the January issue of THE AMERICAN CITY we published an article, "Making Refuse Service Self-Supporting," which included a model ordinance that would permit collections of fees from the householders for the removal of refuse by the city. This model ordinance as well as the system to be described in this article was prepared by Hume K. Nowlan, Executive Secretary, West Virginia League of Municipalities.

For a city initiating collection service for the first time, only a small amount of preparatory work is necessary be-

REFUSE SERVICE
CITY OF URBAN, W. VA. No. 1000

DATE Oct. 23 1935

The below named person, firm or corporation, having applied for the service and paid the charges stated hereon, is issued this receipt expiring at midnight on Oct. 23 1936

Mrs. James Whipple
1309 Chestnut St.

SERVICE	FEE
YEAR TRASH AND GARBAGE	6 00
YEAR ASH	4 50
CONTRACT NO.	
TOTAL	10 50

Charles R. Franklin TREASURER

This receipt for payment for refuse collection service is made in triplicate: white original to the subscriber as a receipt; pink duplicate for posting; and a yellow triplicate for permanent filing

PAID 1 2 3 4 DATE OCT 23 1935

No. 1151

Weekly Trash Service
City of Urban, W. Va.

1 2 3 4	1 2 3 4	1 2 3 4
1 2 3 4	1 2 3 4	1 2 3 4
1 2 3 4	1 2 3 4	1 2 3 4
1 2 3 4	1 2 3 4	1 2 3 4

PAID 1 2 3 4 D 3W 2W W M DATE JUL 23 1935

No. 751

Contract Trash Service
City of Urban, W. Va.

1 2 3 4	1 2 3 4	1 2 3 4

ROUTE CARDS AND A SPECIAL INCINERATOR OR DUMP TAG

REC'D

¢	$	$
5	1	6
15	2	7
25	3	8
50	4	9
75	5	10

No. 2230

City of Urban
INCINERATION OR DUMPING FEE RECEIPT

PAID

¢	$	$
5	1	6
15	2	7
25	3	8
50	4	9
75	5	10

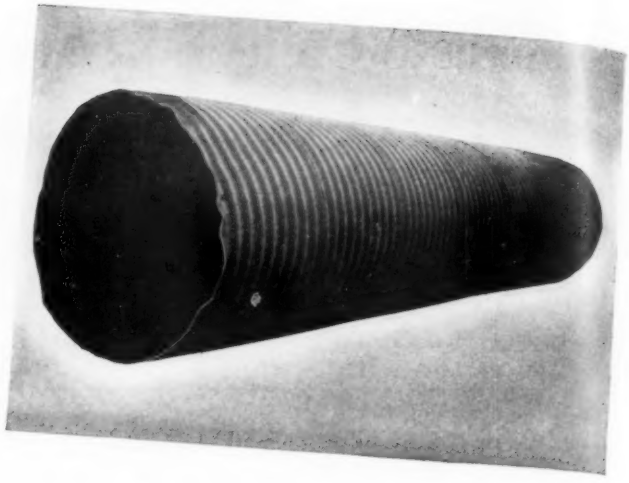
No. 2230

City of Urban
INCINERATION OR DUMPING FEE RECEIPT

Left—All Route Cards are this size originally. If payment is made for only three-quarters of a year, the bottom tier of three rectangles is cut off, eliminating the four collections for each of three months. Similarly, half of the rectangles are cut off if payment is made for only one-half year. The Weekly Ash Service Card is identical with the Weekly Trash Service Card

Center—When the Contract Trash Service Card is completed, the "1" under "Paid" in the upper left-hand corner will be punched out and if the customer has paid for daily service, the "D" will have a punch beside it. Further, the customer would be required to have six of these cards so that he would receive collection each week day. This card has been cut to show that service has been paid for only one-quarter of the year

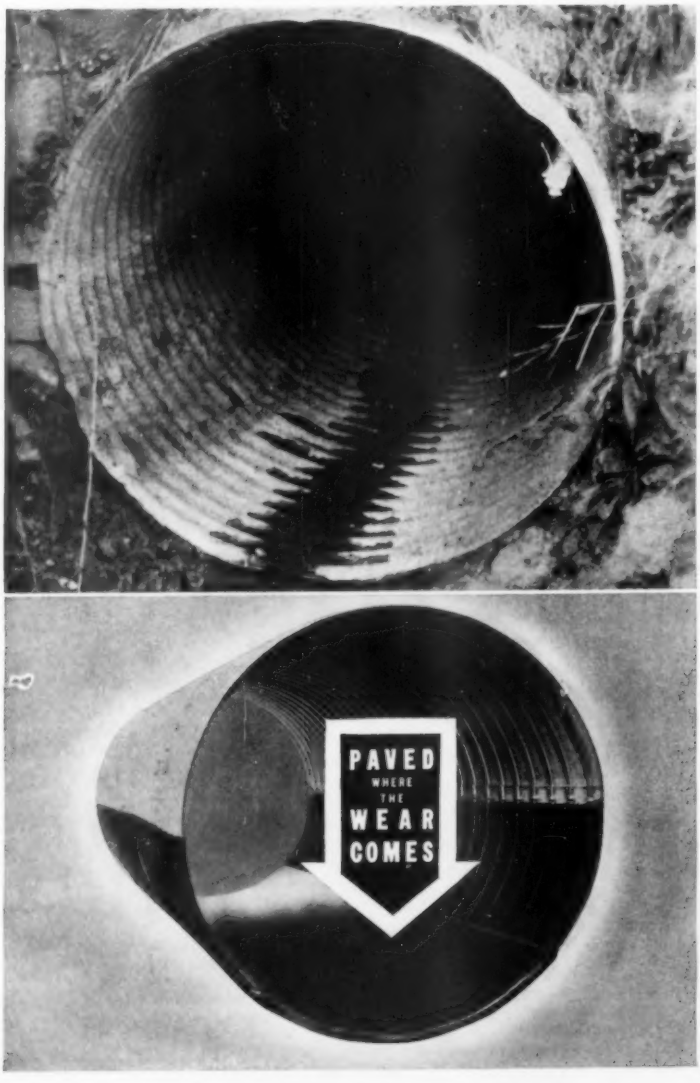
Right—A special card adapted for cities which have a schedule of charges for the disposal of refuse delivered to the municipal incinerator or dump. Regulations covering this service usually require materials to be unloaded by the customer on the furnace charging floor or over the dump, according to directions of the disposal foreman. Charges are made at scheduled rates on different quantities of specific material, but each load is subject to variations by the foreman upon inspection for unusual volume or character of material



Here's the first corrugated pipe—made and installed in 1896, near Crawfordsville, Ind.—removed for exhibition, after 28 years in the ground.

3 *Events*

THAT MADE DRAINAGE HISTORY



IN 1896: Many of the objections to existing types of drainage structures were eliminated by the invention of corrugated metal pipe. Its long, light-weight sections brought about immediate savings in hauling and installation costs. Moreover, due to its flexibility and sturdy joints, corrugated pipe soon proved its ability to stand up where other types couldn't take it. And it has continued to prove its superior strength *for 40 years!*

IN 1906: The development of rust-resisting ARMCO Ingot Iron created a high standard of durability for corrugated pipe. In fact, many of these pure iron drains are sound and strong today—after *30 years of service.*

IN 1926: ARMCO engineers raised the standard of corrugated pipe still higher, by putting a thick bituminous pavement in the bottom, where the wear comes. This improved product—known as ARMCO Paved Invert Pipe—gives you the 40-year strength of corrugated metal; the 30-year durability record of pure iron; plus an *extra 10 years* of service, already established by the protected bottom. No wonder more and more engineers and public officials are turning to ARMCO Paved Invert Pipe, for every drainage purpose. It costs less because it lasts longer. Make us prove it.

Above: After 30 years of service, this ARMCO pure iron culvert is still functioning 100%.

Below: ARMCO Paved Invert Pipe—paved where the wear comes, with a special bituminous material.

ARMCO

ARMCO CULVERT MANUFACTURERS ASSOCIATION • • • Middletown, Ohio

When you write for that catalog, kindly mention THE AMERICAN CITY

fore the ordinance can become effective. By the time the disposal plant has been built, collection equipment bought, and personnel employed, the public will be well acquainted with the general regulations and ready to cooperate in making the plan a success.

Changing from Free to Fee Not Easy

This will not be true, however, in municipalities where it is necessary to change over from free refuse service to a fee system. Whatever service he has been receiving has always been "free" to the average householder because the cost has been hidden away within general property taxes. When it becomes necessary to discontinue the service and adopt a fee system, the vociferous minority will complain loud and long. In such a case a whole month of intensive publicity will be necessary to generate the necessary "customer" attitude among citizens.

Copies of the new ordinance and regulations should be delivered to each home early in the campaign. This should be followed by a series of short explanations in newspapers, and brief talks to as many women's clubs as possible. Emphasis should also be placed on the public health features of the service. This is more impressive and more easily grasped than is an explanation of city finances, no matter how simply they may be presented.

Accepting Advance Fees

About two weeks before the fee ordinance becomes effective, the treasurer should be ready to accept subscriptions. A simple and satisfactory form for this purpose is shown below. A white original is delivered to the subscriber as a receipt, a pink duplicate becomes a posting slip, and the yellow triplicate is filed as a permanent record. Some treasurers will type these forms loose-leaf; but most will have them bound into pads and will pencil-in the entries.

Route Cards

Route cards are prepared from the duplicate refuse service slips. These cars are merely colored shipping tags printed for punching by collectors as service calls are made. Four are necessary in most cases: one for trash service, including prepared garbage where both are incinerated together; one for ashes, unnecessary in a natural-gas region; and two others for contracts covering special volume or frequency of service. Facsimiles of these cards are reproduced below.

Route cards are placed on ordinary arch files mounted midway on 7 x 12-inch boards. Each file will cover a complete route and an average day of work for a collection truck. The cards are filed in route order by the collection foreman and allotted by routes to each truck driver daily. The driver follows the route cards exactly and punches holes in the printed spaces as the service calls are made. He then shifts the tag over the arch, thus bringing the card of the next customer into view. In this way collections are expedited and there is no waste movement of men or equipment.

The use of this system gives the city a complete and unalterable record of service rendered each customer, and subscribers are protected in that they are all treated alike and non-subscribers are never served—this is a very important matter indeed!

This is a complete, simple and accurate method of conducting refuse service on a fee basis. A much simpler plan is to place an identification tag on the property of each customer and depend upon the collectors to make no errors or omissions in service. A few cities use the latter plan, but the method detailed above is much more dependable and satisfactory both to the city and to the subscriber.

Edward VIII Expected to Declare War on the Slums

IN a dispatch on the accession of King Edward VIII to the British throne, William Philip Simms, Scripps-Howard Foreign Editor, recalls a recent speech made by the then Prince of Wales at the Guildhall after an inspection of the slum districts and housing conditions of some of Britain's principal cities:

"When he rose to address the gathering, whose aggregate wealth reached astronomical figures, it was expected that he would give them ten minutes of platitudes and sit down amid the usual white-gloved applause. Instead he said this:

"'There are a great many slum dwellings in this country that are relics of a bygone idea of what was tolerable for workmen. That type of home must be demolished. They are not, and must not be, considered fit for the coming generation. I've personally inspected many such places. And I have been appalled.

"'New houses can be built within reach of workingmen if a big income is not what is looked for. This nation cannot afford to perpetuate such slums. What's the use of treating the diseases of slum dwellers, especially the children, if when cured they are to be sent back to such slums? It is a disgrace to our national life.'"

Caged Beasts and Caged Humans

DISCUSSING 'Sociological Effects of Garden Cities," in *Social Forces* for January, 1936, Dugald Macfadyen, of Letchworth, England, compares the garden city experiments in England and America with another experiment with which we are familiar:

"The London Zoo at Regent's Park had for a generation been a favorite resort. As Londoners themselves lived in highly artificial cages it did not seem wrong to them that animals like zebras, bisons, ostriches, and giraffes should live in cages also. But slowly biologists, zoologists, and naturalists began to criticize this mode of life. The animal was never seen at its best in thoroughly unnatural conditions. Why not give it room to move, air to breathe, sun to bask in, and so bring out its essential animal characteristics? So the Zoo was moved to Whipsnade, and every one was delighted with the result, including the animals.

"Biologically man is an animal, sociologically he is a community animal. If he is kept in a cage in a flat, or a slum, he does not show what he really is. He develops subnormal characteristics; diseases, habits like overeating and overdrinking which he would never want to do if he were living a natural life according to biological laws and sociological instincts. Why not try the permanent characteristics of the human being instead of making artificial cages and forcing people into them?

"If we do a bit of 'simultaneous thinking,' as Patrick Geddes called it, we know that what we want is not more and bigger cities taking us further and further from the organic laws of human life, but nurseries and seedplots of a new civilization based on permanent values."

FOR OPERATING COSTS OF MOTOR EQUIPMENT

BURROUGHS OFFERS A COMPLETE, SIMPLE AND ECONOMICAL PLAN

The extensive and growing amount of motor equipment now employed by most city departments makes the keeping of accurate cost records a necessity.

Burroughs has made a particular study of this municipal accounting problem, and brings to its solution new accounting procedures which Burroughs has developed to simplify and modernize the work.

Your local Burroughs representative will be glad to show you how you can keep up-to-date reports on operating costs; mileage traveled by each unit by types, fleets and departments; as well as other highly desirable information of like nature.

You can also have a complete record of depreciation and repairs, and individual earnings of each unit where equipment is used on a rental basis. The cost of individual projects can also be determined.

For complete information, telephone the local Burroughs office or fill in and mail the coupon below.

Burroughs

Governmental Division, Burroughs Adding Machine Company, Detroit, Michigan

Without obligation, send me complete information about the newest mechanical equipment for handling the accounting problems checked below.

Tax Accounting ☐ Budgetary Control ☐ Fund Accounting ☐ Stores Records ☐ Payroll and Check Writing ☐
Purchase and Payment Records ☐ Revenue and Expense Distribution ☐ School Board Accounting ☐
Motor Equipment Cost Records ☐ Municipal Utility Accounting ☐ Institutional Accounting ☐

Name_____ Title or Position_____

Address_____

Fighting a 23-Inch Snowfall—II

Organization, Personnel and Equipment for Snow Removal in Portland, Maine

By EDWARD M. HUNT
Commissioner of Public Works

(Continued from the January issue)

Portland's Greatest Recorded Snowfall

A description of operations during the snowstorm of January 23 and 24, 1935, will illustrate the procedure of snow removal in Portland. This was the greatest snowfall on record here. In the case of a lighter snowfall the method is the same, but a smaller force is employed and the snow is cleaned up in less time.

The snow began to fall about 2:30 P. M. on January 23, and continued, accompanied by a high wind, until about noon on January 24. At the beginning of this storm there was 12 inches of snow on the ground from previous snowfalls. This previous snowfall had been removed from the streets by plowing and hauling, but the snow-banks remaining on the sides of the roadways from previous plowing added to the difficulty of handling the new storm.

The snowfall of January 23 and 24 was 23.3 inches on the level. In compactly built up sections of the city the depth of snow in the streets was increased by snow blown from roofs to double the average depth. In the more open parts of the city the high wind had piled snowdrifts as deep as 8 feet in some of the streets. There followed a snowfall of 1 inch on January 25, and one of 6.6 inches on January 29. The total snowfall for the month of January, 1935, in Portland was 58.9 inches, which is the greatest on record. The work of handling the above mentioned snowfalls continued from January 23 to February 1. During those days the temperatures at 8. A. M. were as follows:

Date 1935	Temperature U. S. Weather Bureau	Degrees F. City Garage
Jan. 23,	+12	+ 6
" 24,	+ 8	0
" 25,	— 7	—10
" 26,	+12	+16
" 27,	— 5	—10
" 28,	— 6	— 6
" 29,	+10	+10
" 30,	— 2	— 8
" 31,	— 8	—18
Feb. 1,	— 4	+ 6

During some of the above nights lower temperatures were reached. Information as to snowfall and official temperatures, shown above, was furnished by the U. S. Weather Bureau at Portland, Maine.

For snow-plowing, the city of Portland is divided into eighteen districts or areas. By arrangement with the local office of the United States Weather Bureau the Department of Public Works is furnished with the earliest available information about approaching storms.

At 6 P. M. on January 23 the amount of snow that had fallen would not ordinarily have been considered sufficient to warrant starting the plows. On this day, however, advice had been received from the U. S. Weather Bureau that an unusually heavy snowstorm with high winds was to be expected. Accordingly the snow-plow crews were directed to report for work at 6:30 P. M. Following the standard practice, snow-plows were started in all the eighteen districts. Shortly after 8 P. M., January 23, the wind and

SNOW LOADER WITH SIDE DELIVERY TRAILER WORKING ON PRINCIPAL STREET IN PORTLAND, MAINE

snowfall had increased so rapidly that it was evident that the usual practice of attempting to keep all the streets open could not be followed. Therefore, all the snow-plows were concentrated upon the principal thoroughfares. By this method all the principal avenues into and through the city were passable for motor traffic when the snowfall ended, about noon, January 24, and 23.3 inches of snow had fallen. By midnight January 23, so much snow had fallen, and it had been drifted and packed so hard by the wind, that it could no longer be plowed by the blade plows, which are usually our most effective plows. Therefore, the blade plows were removed from the five trucks with interchangeable plows, and the V plows were installed. This made eleven V plows available for use.

On Sunday, January 27, at 6 P. M., practically every street in Portland had been opened for traffic by plowing through it at least once. After all the streets had been plowed through once, the traveled ways were widened by repeated plowing until all the available width for traffic was secured. The widening process was begun about noon Saturday, January 26, and continued through Friday, February 1, when practically every street in the city had been plowed wide enough to permit the movement of two lines of traffic. In the meantime more snow had fallen, 1 inch on January 25 and 6.6 inches on January 29. Any great addition to the amount of snow on the ground on February 1 would mean that snow from the roadways would have to be plowed onto the sidewalks in order to maintain roadways for two lines of traffic. The foregoing account applies to streets where roadways are cleared of snow by plowing but where the snow is not hauled away.

Loading and Hauling Snow

The clearing of those streets from which it is customary

announcing
Greater 1936 values in General Motors Trucks

1. Cost-reducing improvements throughout the entire line.
2. Advanced streamline appearance.
3. For the first time, money-saving GMC dual performance axles in 1½ ton to 6 ton capacity ranges.
4. More distinctive, more comfortable streamlined cabs.
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6. A new quality low-priced ½ ton delivery.
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½ TON $425 CHASSIS F.O.B. PONTIAC — TRUCKS OF VALUE

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General Motors Trucks and Trailers

GENERAL MOTORS TRUCK COMPANY • PONTIAC, MICHIGAN — ½ TO 15 TONS

Mention THE AMERICAN CITY—it helps.

to remove snow by loading it onto trucks and hauling it away was begun on January 24 about 6 P. M. This was as soon after the storm as it was deemed advisable to begin this work, because some time must be allowed for clearing away the snow from sidewalks and roofs which is thrown onto the roadways by the occupants of abutting premises. Also, some time must be taken to open the streets leading to the snow-dumping places. In this city two principal dumping places are used, namely Tukeys Bridge and the State Pier Dock. The city uses the former and the street-railway company uses the latter in the daytime. At night the city uses the State Pier Dock. The street-railway company clears certain streets where its tracks are, but it does not haul snow at night, because it does all its loading by hand shovelers. It is not deemed practicable for men to do such work at night because on account of cold and darkness they cannot work to advantage.

About 120 hired motor trucks were used by the city for hauling away snow. Some of the trucks were loaded by the city's two snow loaders, each of which was accompanied by a snow trailer for side delivery of the snow. Each loader with trailer requires a fleet of about fifteen trucks to keep the loader busy with an average haul. Under favorable conditions as to shape and size of snow-bank and quality of snow, a loader with trailer will load 10 cubic yards of snow onto a truck in 30 seconds. Average performance, including placing the trucks under the loader and various inevitable delays, is about 30 truck loads per hour. The trucks used here will average 7 or 8 cubic yards per load. Four hand loading crews were organized to load the trucks that were not loaded by the mechanical loaders. Crews of men were stationed at the snow-dumps to assist in unloading trucks, and especially to unload the trucks with stationary bodies. About 400 men were employed in loading and dump crews while operations were at their height, in addition to foremen and operators of equipment. The two snow loaders and two side-delivery snow trailers worked continuously from 6 P. M., January 24, to 6 A. M., January 31, except for necessary short periods for greasing and minor repairs. During this period, from January 23 to January 31, by means of mechanical loading and hand loading and trucking, all the principal business streets, from which it is customary to remove the snow, had been cleared. At this time, owing to continuous operation, it was deemed necessary to take both loaders and trailers into the shop for a thorough inspection. The inspection was completed during the day of January 31. The four hand loading crews were employed principally on various streets that are too narrow to permit the use of mechanical loaders. These crews operated until 5 P. M., February 1.

OVER SHE GOES AT THE STATE PIER DOCK, PORTLAND, MAINE

Dump Organization

The most serious phase of snow removal by trucking is dump organization. This consisted of two crews on day shift, one to handle dump-trucks and one to handle platform trucks, which unfortunately it was necessary to use on account of the magnitude of the storm. Three dump locations were used, one at Preble Street at Back Cove for hand unloading, one at Tukeys Bridge for dump-trucks working in the daytime, and one at the State Pier Dock, used at night. The reason for using Tukeys Bridge in the daytime and the Pier at night is this: It has been found by careful study that, owing to the vehicular and railroad traffic at the State Pier, trucks working east of Longfellow Square can produce more in spite of the longer haul. Another feature of the situation is the dumping by the Portland Street Railroad at the State Pier Dock in the daytime. To have two fleets of trucks, numbering approximately 200, dumping in such a congested area, would slow down disposal and increase costs beyond reasonable bounds. During the extremely hard working conditions no serious repairs became necessary. In order to be prepared to make repairs, a mechanic and a helper were on duty at the garage both day and night.

Costs

From January 23 to February 1, 1935, both inclusive,

Tarvia is made only by The Barrett Company, America's oldest and most experienced manufacturer of coal-tar road-building materials. Thirty-two years of manufacturing experience have taught Barrett chemists and engineers how to refine Tarvia in grades to meet every highway need. Thirty-two years of field experience have taught Tarvia field men correct construction and maintenance technique. The combination of Tarvia and Barrett service results in a degree of uniformity and dependability which other road tars and methods do not duplicate.

THE TECHNICAL SERVICE BUREAU of The Barrett Company invites your consultation with its technically trained staff, without cost or obligation. Address The Technical Service Bureau, The Barrett Company, 40 Rector Street, New York.

Corduroy Road, Lucas County, Ohio. Tarvia-built in 1912. As smooth, easy-riding and skid-safe in 1936 as when it was built, 24 years ago.

THE BARRETT COMPANY New York Chicago Philadelphia Birmingham Boston St. Louis Cleveland Minneapolis Lebanon Milwaukee Detroit Baltimore Columbus Youngstown Toledo Buffalo Providence Syracuse Hartford Cincinnati Bethlehem Rochester Portland, Me. In Canada: THE BARRETT COMPANY, LTD. Montreal Toronto Winnipeg Vancouver

about 3,000 man-days of common labor, at $3.50 per day of 9 hours, were employed on snow handling. This does not include the time of foremen and operators of equipment.

The estimated total cost of snow handling from January 23 to February 1, 1935, both inclusive, practically all of which was occasioned by the storm of January 23 and 24, 1935, was as follows:

Labor, including supervision	$11,000
Use of equipment, including fuel and oil, and wages of operators	18,000
Total	$29,000

By this expenditure all the streets in the city were opened to travel more or less roughly. After February 1 a considerable amount of work was done, consisting of widening by plowing, and removing snow from street intersections, so as to clear the crosswalks for pedestrians. Also, on account of the great quantity of snow it was necessary to remove snow from some streets where plowing is usually sufficient.

The snowfall and the cost of handling snow and ice on the streets of the city of Portland, Maine, for the twelve years previous to 1935, were as follows:

Year	Snowfall	Cost
1923	125.0 inches	$57,292.13
1924	73.5 "	34,332.85
1925	57.0 "	30,676.22
1926	59.9 "	45,341.73
1927	77.8 "	40,813.42
1928	58.8 "	24,341.03
1929	57.4 "	27,329.17
1930	47.5 "	28,709.79
1931	60.6 "	68,006.95
1932	65.6 "	49,545.73
1933	65.2 "	52,276.37
1934	119.1 "	70,954.20

This is the total cost of all work done on snow and ice on the streets, including sanding icy roadways and sidewalks. The city sands icy sidewalks on the most heavily traveled business streets.

It is noticeable that the cost does not vary exactly with the snowfall. This may be due to the condition of the snow. Heavy snow costs more to handle than light snow of the same depth. Temperature also affects the cost. Thawing weather or rain after a snowfall reduces the cost of handling, while a rain followed by freezing increases the cost.

National Organizations to Have Fine New Home on University of Chicago Campus

A GRANT of $1,000,000 to the University of Chicago by the Spelman Fund of New York as an aid to "the growing movement for greater efficiency in government, particularly at the state and local levels," was announced on January 17 by Dr. Robert M. Hutchins, President of the University. The fund is designated for the erection and maintenance of a building to house the national headquarters of seventeen associations of public officials and other professional groups, affiliated with the Public Administration Clearing House, which are working on practical, every-day problems of administering the public business, as distinct from governmental problems of policies and politics. The new building to house them will be erected on University property, on the south front of the Midway, at the southeast corner of Kenwood Avenue and 60th Street.

Primary aims of the associations are the "breaking down of the isolation which has existed between local government agencies in various sections of the country; improvement of administration through interchange of information and of the results of experience; fostering of cooperation between governments at all levels, local, state and Federal; and advancing among public officials technical skill and administrative competence."

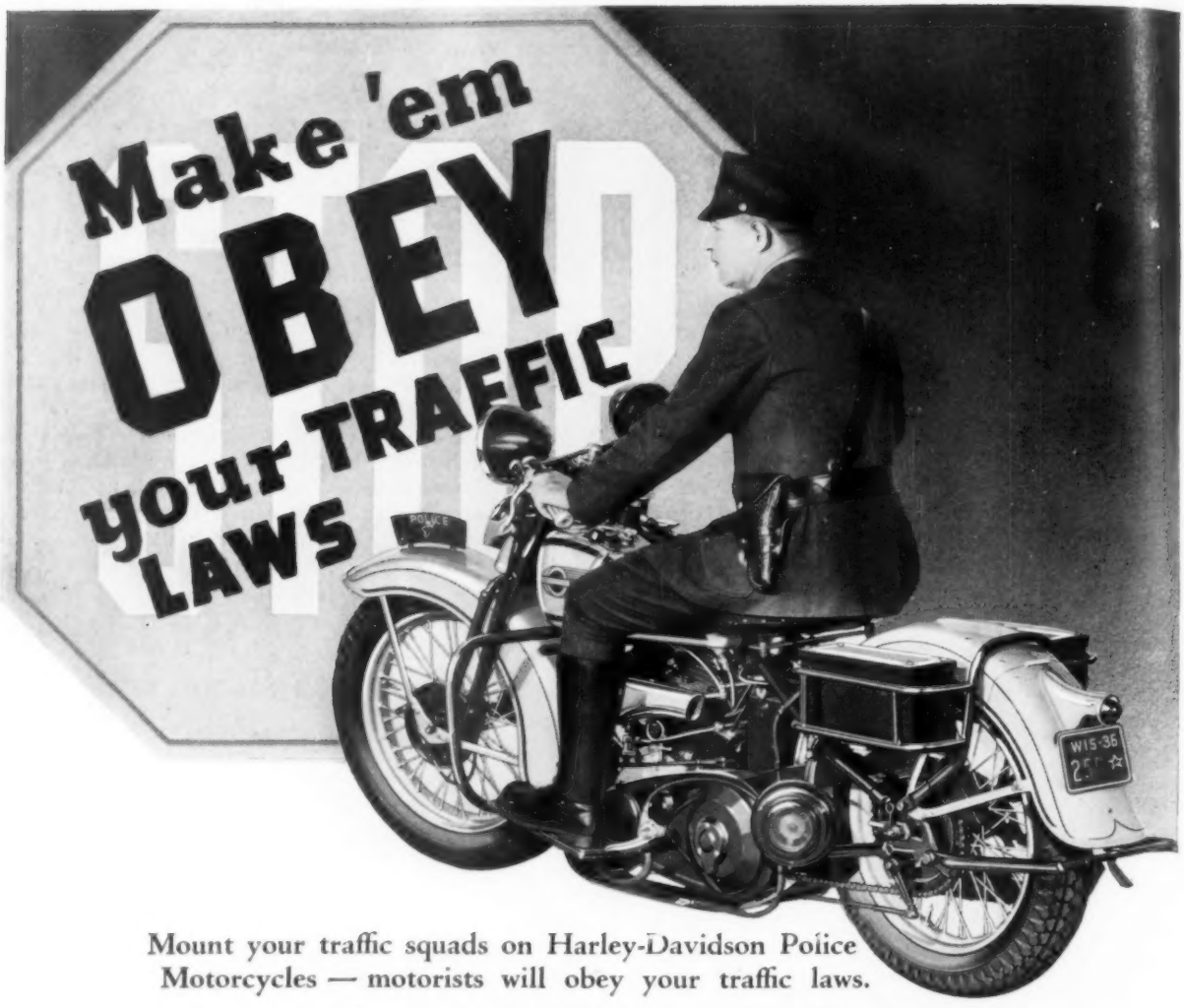
"Currently and in the past the Public Administration Clearing House and its allied organizations have demonstrated their usefulness in the pooling and exchange of information among government agencies throughout the country," Dr. Hutchins said. "The enterprise now ceases to be an experiment; it becomes an established feature of American government. The University is delighted at the chance to cooperate."

The Public Administration Clearing House, central agency of the group of associations, is headed by Louis Brownlow, former Commissioner of the District of Columbia and former City Manager of Knoxville, Tenn. Its Board of Trustees is composed of former Governor Frank O. Lowden of Illinois, Chairman; Senator Harry F. Byrd of Virginia, Vice-Chairman; Ralph Budd, President of the C. B. & Q. Railroad; Richard S. Childs, of New York, former President of the National Municipal League; former Governor William T. Gardiner of Maine; Mr. Brownlow and Dr. Hutchins.

The organizations which will occupy the new building, besides the Public Administration Clearing House, are: American Legislators' Association; American Municipal Association; American Public Welfare Association; American Society of Municipal Engineers; American Society of Planning Officials; Civil Service Assembly of the United States and Canada; Council of State Governments; Governmental Research Association; International Association of Public Works Officials; International City Managers' Association; Municipal Finance Officers' Association; National Association of Housing Officials; National Association of Assessing Officers; and Public Administration Service; the latter a research, consulting and publications service jointly maintained by all the other organizations. A Joint Reference Library is similarly maintained. In addition, the Council of State Governments acts as the secretariat for the National Association of Attorneys-General, the National Association of Secretaries of State, the Tax Revision Council, and the Interstate Commission on Crime. Other similar groups have indicated interest in moving their headquarters to the Midway.

Although the organizations remain distinct from each other and from the University, advantage is gained by having them under a single roof and close to the University, President Hutchins pointed out. "The organizations profit from the research and scholarship of the University. The University's research and teaching in government profits from the practical work of the associations and their memberships." A number of association directors now hold lectureships on the University's faculty.

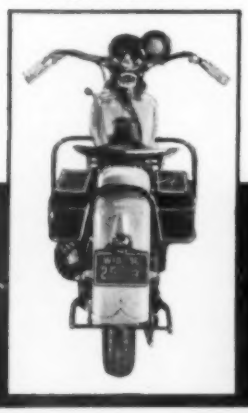
The University is not embarking upon a vocational program to train students to be public officials, Dr. Hutchins said. "The University's present plan of teaching and research in government should, in cooperation with Public Administration Clearing House, continue to result in the production of a considerable number of educated public officials. The University does not intend to shift its emphasis from such theoretical work to specific practical training in public administration."



Mount your traffic squads on Harley-Davidson Police Motorcycles — motorists will obey your traffic laws.

Give your officers the great "74 Twin" and "80 Twin" police motorcycles — with many remarkable improvements — and they will show you how to reduce traffic deaths and accidents. With extra speed, faster get-away, remarkable flexibility and amazing ease of handling—plus modern radio equipment—these new Harley-Davidson motorcycles assure most complete and effective traffic control. What's more, the ease and dispatch with which they can be handled in congested traffic plus low cost of operation and maintenance offer distinct advantages over other types of motorized equipment.

Radio-equipped Harley-Davidsons answer every need of central control and speedy massing of officers. Note the new, compact, "saddle-bag" mounting of radio. Weight is way down low — handling of motorcycle improved.



See your nearby Harley-Davidson Dealer now—or write us for special police literature.

HARLEY-DAVIDSON MOTOR CO. *Dept. M.* MILWAUKEE, WIS.

HARLEY-DAVIDSON

The Police Motorcycle

Why Fire Losses Are Dropping

By PERCY BUGBEE
Assistant Managing Director,
National Fire Protection Association

THE preliminary estimates of the fire loss in the United States during 1935 disclose the fact that the loss record for the year was more favorable than for any year since the Great War. Using a liberal estimate of $255,000,000 as the loss figure for 1935, the following tabulation of the losses by three-year periods for the last dozen years provides an interesting picture of the fire-loss situation:

1924-1926	1927-1929	1930-1932	1933-1935
$1,670,000,000	$1,397,000,000	$1,355,000,000	$789,000,000

The remarkably lower level of fire losses in the last three years as compared with the first three years of the depression period is the most noticeable feature of this statement. Certain influences brought about by the depression have been operating to encourage reduced fire losses. There has been rather obviously a substantial reduction in the amount of goods to burn because of the very restricted inventories of the last few years. The manufacturers do not produce as much and the retailers do not carry any larger stocks than they have to. A very good indication of this is the fact that there has been a marked decline in premium income of fire insurance companies during the last several years. This decline appears to be about 40 per cent of the premium income figure of 1929, a clear indication of reduced property values. It is probably also true that many people cut down on the amount of insurance carried, and some even eliminate it entirely during hard times. The increased amount of caution exercised because of reduced insurance is probably a factor in reduced losses.

A very important factor in the picture is the thorough deflation of values of property and material so that a large part of the incentive for any one to burn property for profit is removed. The heavy wave of incendiary fires during the first period of the depression has practically subsided because of this practical consideration of replacement values.

Another important depression factor in the reduced loss situation is the large number of idle manufacturing plants. In an industrial plant that is working with a large force of men under heavy pressure day and night, the normal possibility of fires from hazards inherent in industrial processes is greater than in periods of comparative idleness.

There have been a great many other factors operating to reduce the fire loss during the recent decade. The heavy-loss years in the 1920's aroused widespread interest in various measures for fire control, and the advent of the depression period, which inevitably brought with it a large number of incendiary fires during the first year or two, stimulated materially the efforts of fire preventionists everywhere.

Not Mere Water Throwers

Let us review some of these factors that have been at work and that have unquestionably played their part in the reduction of the fire loss. Students of municipal fire department practice are familiar with the fact that in a comparatively short period of years the attitude of municipal fire departments in the United States has been almost universally changed. The fire departments of today are not mere water-throwers. The majority of the fire chiefs have caught the spirit of fire prevention and are bending their energies toward an improvement of the loss record of their own cities. A valuable factor in this development has been the stimulation of a competitive spirit among the fire departments of the cities of the country. This may be more or less directly traced to two movements both launched in 1924. I refer to the field service campaign of the National Fire Protection Association and the intercity fire waste contest organized by the National Fire Waste Council affiliated with the Chamber of Commerce of the United States.

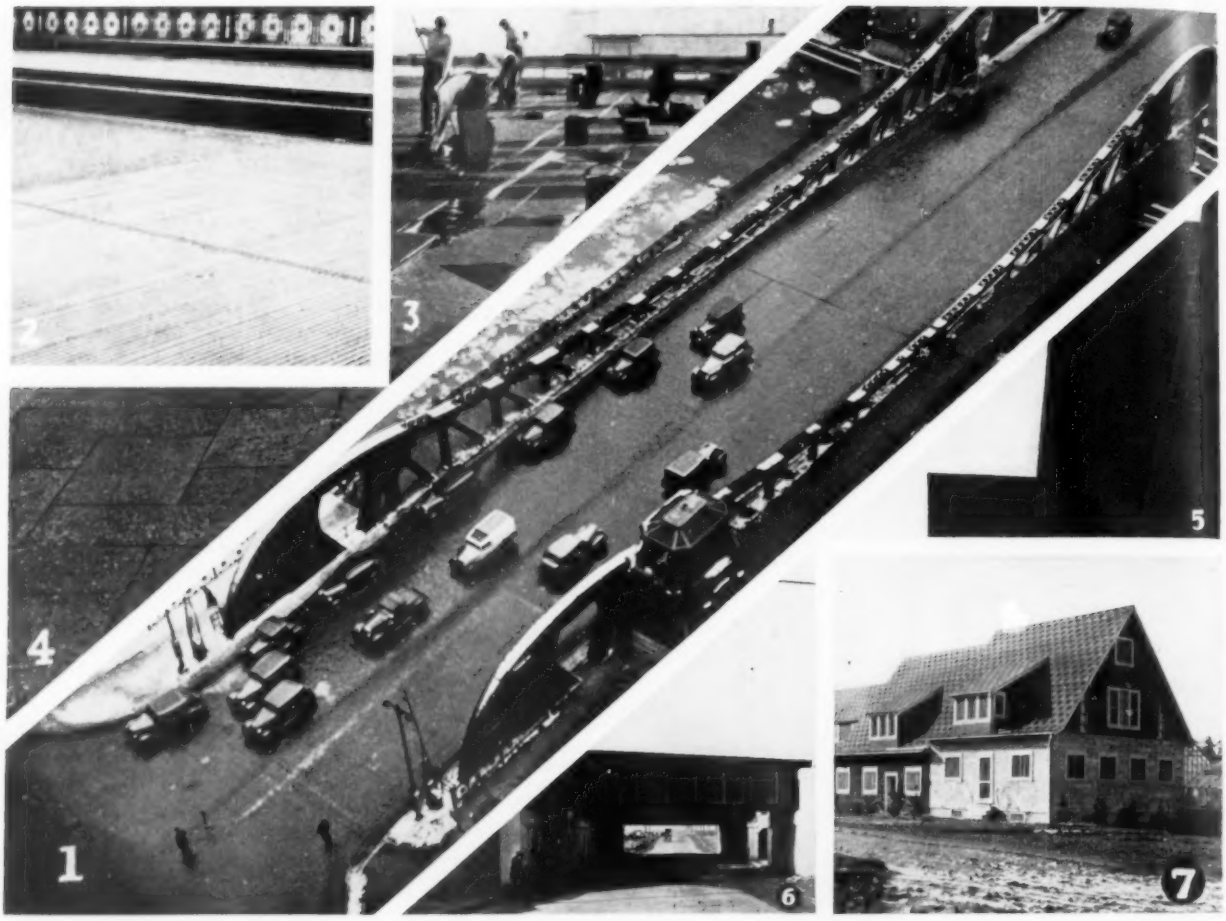
The elaborate fire-prevention inspection programs now found in most of the large cities of the country are all of comparatively recent origin. This change in point of view towards the fire waste is to my mind one of the most vital factors in the whole picture of reduced losses. A good measure of the value of this sort of work may be indicated by the fact that while losses in industrial and mercantile establishments have been materially on the decrease, losses in dwellings have been on the increase. Dwellings have been excepted from the fire-prevention inspection work of most departments. In the last year or two many departments have turned their attention to controlling the fire hazards of dwellings and have made wholesale inspections of these properties, with consequent material effect in reducing fires and losses therein. The spread of this idea generally throughout the country will be another very important factor in controlling fire waste in succeeding years.

Better Fire Fighting

Along with the change in the fire-prevention attitude of fire departments, there has been a corresponding increase in more efficient fire-fighting operations. A review of the efforts to provide adequate training for firemen shows that more of such training was carried on in 1935 than in any previous year in history. Courses in training for firemen have been extended from the urban centers to reach the small volunteer fire departments throughout the country.

The principle of proper salvage work by fire departments was relatively slow to catch on, but has likewise taken a remarkable jump ahead in recent years. It is relatively uncommon today to find a fire department, even a very small one, without any equipment for minimizing the losses from water and smoke incidental to fire.

Students of fire-waste problems have maintained for a good many years that the improvement in construction of buildings and the steady growth in the demand for fire-resistive buildings must eventually have an important effect upon fire waste. The boom in the building industry in the post-war period is history. The buildings built during that period were for the most part of an improved type from the fire-protection standpoint. The factor of improved



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More than seven years ago Servicised standard bridge planking was laid on Chicago's LaSalle Street bridge, Figure 1. Today the same material with no replacements or repairs gives promise of providing a perfect wearing surface indefinitely. Figure 2 shows Servicised Sementread non-skid planking for bridges. Specifying asphalt plank for roof decks has become common usage with many architects since the World's Fair, Figure 3, proved its practicability. Figure 4 shows Servicised Rock-Surfaced non-skid planking for bridges. Time proven standard asphalt plank is used wherever a tough but resilient wearing surface is required—see Figure 5. Recently completed 95th Street underpass, Chicago, Figure 6, has Servicised asphalt plank protecting its membrane waterproofing from puncture by railroad ballast. Figure 7 shows standard and Sementread planking for building and power plant construction.

In addition to the above-illustrated, more common uses of Servicised asphalt plank, it is regularly specified for industrial floors and loading platforms, as a protection for corkboard walls of refrigerator rooms, and as filler for steel channel bridge floors. Where wearing quality and lightness in weight is desired use asphalt plank. Servicised will give you service on your requirements of asphalt planking of any type, for any use, anywhere, anytime.

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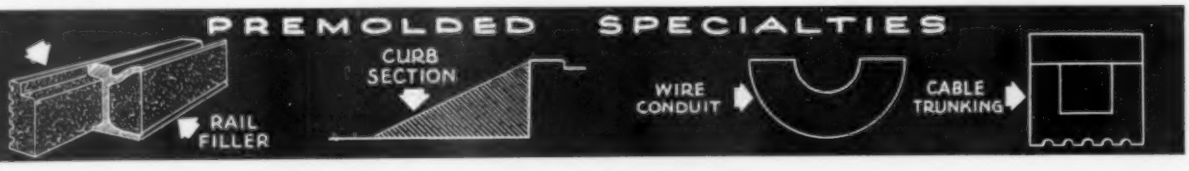

construction must not be ignored in any discussion of fire-loss trends.

A particularly important construction factor that has been a great influence in reducing the number of fires and sweeping conflagrations has been the marked trend in recent years away from the highly hazardous and combustible wooden-shingle roof. Several hundred cities in the United States, including most of the big ones, have enacted legislation greatly restricting or entirely prohibiting the use of wooden-shingle roofs throughout the city limits. In practically every city today the new roofs that go on and the re-roofing jobs are very largely of fire-retardant types.

Another important factor has been the development of an urge in the last few years in all parts of the country for the tearing-down of old and dilapidated property to get rid of it and save tax money. This has stimulated the removal of thousands of such buildings in recent years, and in addition to this natural trend many cities through their fire and building departments and other agencies have made special campaigns to speed up the removal of these old conflagration-breeders which were such a common sight in many of our cities up to a few years ago.

In the last ten years, campaigns to modernize the arson statutes of the country have met with signal success, and today 39 of the 48 states have the Model Arson Law recommended by the National Fire Protection Association or equivalent legislation on their statute books. The crime of arson and the importance of controlling arson have never been more clearly recognized than they are today.

That America May Be Re-Housed

By **NORMAN THOMAS**

I SHOULD like to see America re-housed. It requires action primarily by the Federal Government. It is not action that can be taken satisfactorily without revision of our system of land taxation.

The agency should be a Federal Housing Authority rather than a division in an existing Federal department.

Ideally it should be financed by the Federal Government because the Federal Government has direct control of money and credit. I do not believe in financing housing by the sale of interest-bearing bonds to banks, which bonds may be made the basis by the banks for issuing further money or credit. I do not think it is inflationary to increase the volume of money as one increases the volume of useful work and wealth, especially when, as in the case of housing, the outlay can be self-liquidating. I believe, therefore, in general that housing should be financed by a direct use of Federal money and credit guaranteed by the value the new wealth created. I believe that, if we so desire, adequate control can be set up against inflation.

The broad lines of apportionment of funds should be laid down by Congress, with considerable discretion given to the Housing Authority, with the approval of the President as to the detailed use of the funds. It is important that work be undertaken in rural housing.

State and local housing authorities should be encouraged to recommend sites and to provide construction, but subject to the careful supervision by the Federal authorities which may get into a locality if a proper local agency cannot be found.

I believe that the ideal form of operation is by tenant co-operatives. These, however, will require some training.

It is desirable that we should see how far we could go without any subsidy on housing. I think some subsidy will be necessary to take care of the lowest income groups. My preference would be to have that subsidy taken care of as a matter of relief, but if that should not prove practicable, I should be willing to see it assumed as part of the cost of re-housing America.

Our whole system of taxation will have to be revised in order to deal with the problem of housing, or, indeed, with the real estate problem generally. My present inclination would be to give housing erected by public authorities exemption on buildings, but certainly not on land.

Municipal Functions in Respect to Housing

By **CLARENCE ARTHUR PERRY**
Russell Sage Foundation

THE concern of a municipality in housing can be based most effectively upon the policy of exercising all its powers to one end—that of maintaining real estate values in all sections of the city at their healthiest point. A realistic and effective pursuit of this policy would lead a municipality to take those measures which would (a) keep down the necessity for public health and police services, and (b) convert as rapidly as possible blighted residential areas into those which are economically profitable. Such measures would, it is believed, include the following:

1. Maintain, through the agency of a housing department, a rigorous inspection and regulation of housing conditions, for the purpose of securing the improvement or destruction of all dwellings which fail to meet established standards as to health, safety, morals, and the general welfare.

2. Establish a permanent city planning commission with the function, among others, of surveying blighted and unimproved areas and indicating on maps the boundaries of neighborhood unit districts which could, from the standpoint of the best interests of the city as a whole, be rebuilt or developed in accordance with an approved comprehensive plan.

3. Encourage the formation of limited dividend housing corporations through the giving of governmental assistance which would make it practicable and reasonably profitable to undertake neighborhood unit projects. The "assistance" which, it is believed, would set private capital to work through a limited dividend form consists in: (a) the possibility of an income as high as eight and a half per cent; (b) the assurance of a condemnation service in completing, if needed, the assemblage of a neighborhood unit plot; (c) the provision of a reasonable fee for promotion and organization service costs; (d) the increased marketability of a housing project meeting neighborhood unit standards; and (e) the inherent soundness from an investment standpoint of an undertaking developed through real estate acumen and guarded by governmental surveillance.

4. Encourage the formation of neighborhood improvement districts by offering a condemnation service for approved projects. This device should be effective in refurbishing or rebuilding interstitial residential districts in sections whose general tone was being raised by various new neighborhood unit developments.

5. Establish a municipal housing authority to implement replotting and rebuilding (as provided in the foregoing paragraphs) and also to carry on low-cost, single-family, self-liquidating housing developments in the suburbs, provided such undertakings are found to be practicable public works projects in time of wide-spread unemployment, or provided commercial enterprise does not eventually find it possible, through the procedure outlined above, to build dwellings for the lower income groups.

Monroe Ave., Grand Rapids, Michigan, with its newly completed brick pavement.

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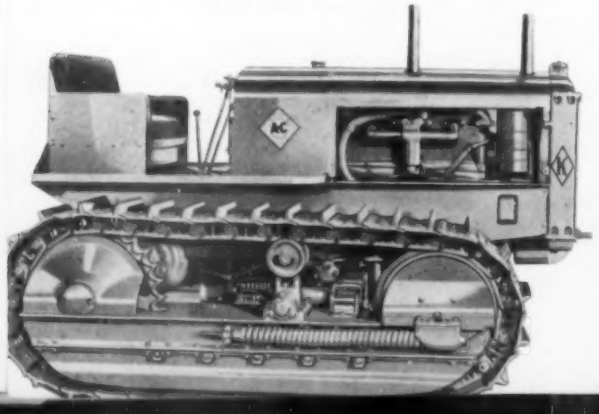

FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Recreation Area Added to Foundation's Successful Housing Development

PITTSBURGH, PA.—Not as a philanthropy, but as an economically justified addition to the social facilities of Chatham Village, Pittsburgh's large-scale model housing project, The Buhl Foundation has announced the dedication of 27 acres of hillside woodland as a permanent area for recreation and nature study for the community of 197 families.

Coincident with this announcement, work was begun upon the modernization of an ancient twelve-room homestead, located at the entrance to the woodland, to be used as village club, already actively organized into discussion groups, dramatic, arts and crafts, and bridge units and mothers' and garden clubs, entirely under the management of the tenants themselves. These facilities, together with tennis courts, a regulation mush-ball field, volley-ball and outdoor basket-ball courts, and a summertime nursery play school under expert guidance, will give Chatham Villagers a rounded program of recreational and social facilities.

Encouragement for this vigorous development of the recreational side of village life has ben found by the Foundation in its four-year experience of management, through the depths of the passing depression. First opened in May, 1932, Chatham Village has been 99 per cent productively occupied since that time and has not known a vacancy in either house or garage for the past two years.

Twin objectives of the Foundation are to demonstrate in Chatham Village: first, the investment soundness of this use of capital funds; and, second, the far superior living advantages obtainable in the large-scale, planned community administered as a rental project over a term of years.

The Foundation believes that both of these objectives have already been realized and are assured of being maintained. The property is amortized over a period of 31 years, and basic rental schedules are designed to yield an average net return of 5 per cent per annum after all charges. Rents, averaging $10 per room per month, include such unusual services as complete lawn and garden maintenance, night watchman patrol, garden lighting, and exceptionally complete recreational and cultural facilities.

The woodland recently dedicated contains hundreds of great oaks and elms, and 2,000 additional plants and shrubs already have been planted. Two miles of trails are being built. Picnic grounds and ovens will be added in the spring.

Under the conventional subdivision of single lots offered for sale, provision for such recreational facilities is difficult, if not impossible. Under typical subdivision practice the woodland would ordinarily be denuded of trees and the timber sold. The land would then be cut up into small lots wherever possible and the steepest hillsides abandoned. The result would be to depress the value of the remaining property in the subdivision.

In dedicating its hillside woodland for recreation, The Buhl Foundation has shown a way in which to make rugged slopes of Pittsburgh or other cities enhance the value of nearby residential property.

CHARLES F. LEWIS,
Director, The Buhl Foundation.

City Park and Street Improvements in Kansas Counties

TOPEKA, KANS.—The state of Kansas has made a determined and successful attempt to provide needed outdoor recreational facilities for its citizens under the emergency relief programs during the last two and one-half years. There has been park development and improvement of a wide and diversified nature, with projects of permanent benefit to the sponsoring communities and to the state as a whole. Landscaping; terracing; construction of lagoons, shelter houses, cabins for Boy and Girl Scouts, rustic bridges, picnic tables and ovens, sidewalks, retaining walls, monkey islands, lily ponds, bandstands, arenas, tennis courts, swimming pools, bathhouses, and fountains; surfacing of sidewalks and drives; construction of bleachers and athletic stadiums; leveling and equipping of athletic fields; installation of lights—all these things were provided under the park program which found approval in about 85 of the 105 Kansas counties.

Schermerhorn Park, at Galena, is one of the five parks in Cherokee County which were improved under county work relief projects. Landscaping work, which included the removal of trees of brush-tangled areas, the laying-out of drives, and the construction of rock retaining walls, was outstanding. Stone used on the walls and the shelter house was excavated from a cave near the park site. Several small bridges were built over a creek running through the park.

Numerous work relief projects were carried out in Salina, Saline County. Work done in Oakdale Park was particu-

THE BUHL FOUNDATION'S $1,600,000 HOUSING DEMONSTRATION IN PITTSBURGH
Pictorial representation of 197 homes and recreational fields, surrounded by 27 acres of woodland

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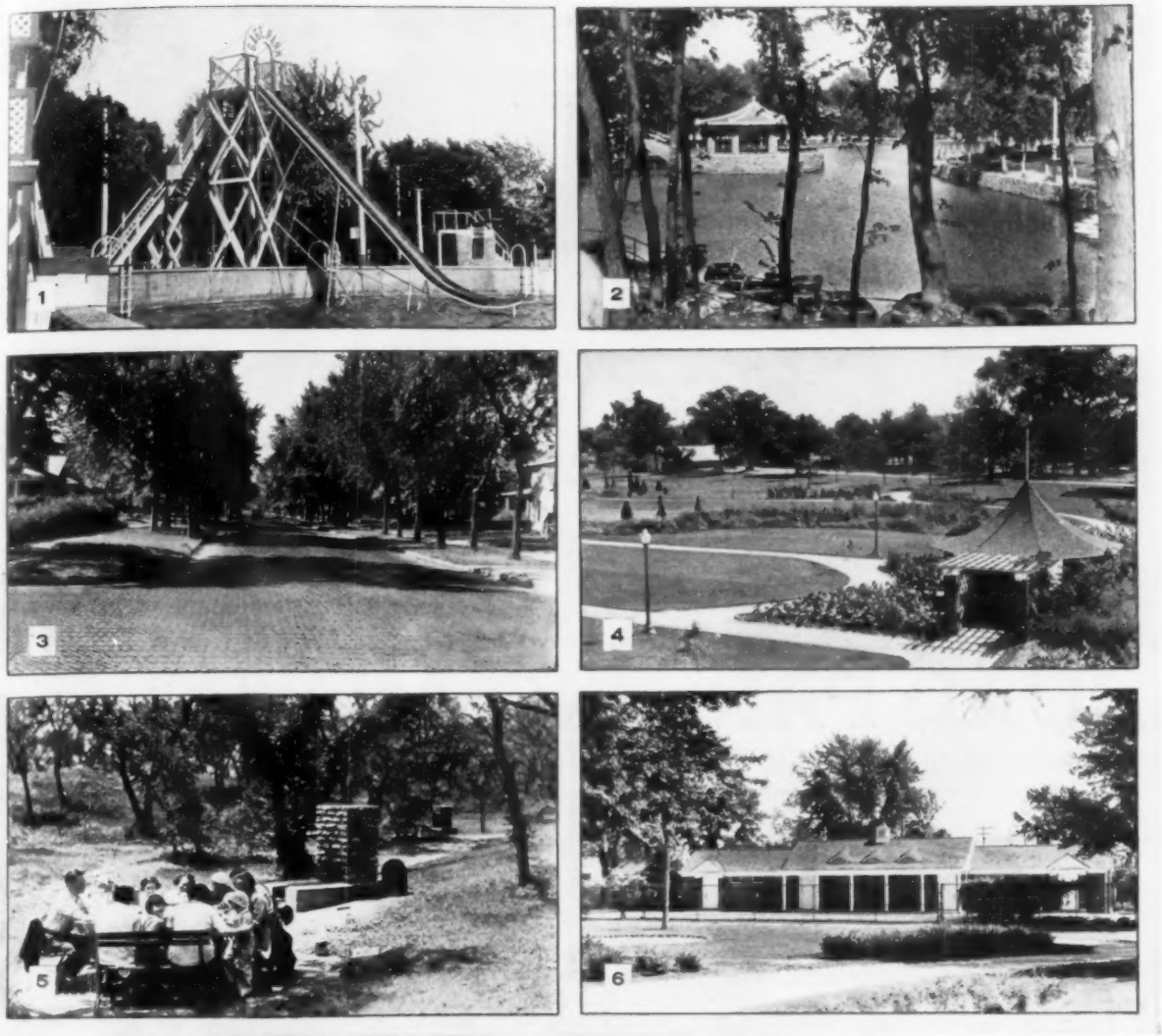

PARK AND STREET IMPROVEMENTS IN THREE KANSAS COUNTIES

(1) Giant slide in swimming pool in Gage Park, Topeka, Shawnee County. (2) Lagoon in Gage Park, Topeka. (3) Before relief workers tore up the brick, turned them over and relaid them, this street in Salina, Saline County, was the worst in the city; now it is one of the best. (4) View of Oakdale Park, Salina, taken from the diving tower in the swimming pool. (5) A picnic dinner in Sim Park, Wichita, Sedgwick County; oven and table built by relief labor. (6) Bathhouse and swimming pool, Lincoln Park, Wichita

larly outstanding. Driveways were graded, trees and shrubbery planted, buildings and grandstands repaired and painted, concrete lily pools constructed, and tennis courts laid out. Part of the project was a plan for a formal garden, which included a change of entrance columns, sidewalks, and streets. All the work on drives and landscaping was done by relief labor. One of the accompanying views was taken from the diving tower in the swimming pool, looking down upon the pagoda and flower-bed.

An interesting renovation project in Salina was the remodeling of the old city jail to provide an office building for the county relief administration staff. Brick supporting walls were relaid to insure safety, new flooring laid, and stairs constructed. Much of the furniture used in the offices was built by relief labor.

City street improvements likewise were made by relief laborers. A view is herewith reproduced showing the street which was the first in Salina to be paved. Before relief workers turned the brick it was one of the roughest streets in the city and practically impassable. Now it is one of the best.

The Park Department in the city of Wichita, in Sedgwick County, sponsored a most comprehensive park improvement program during the progress of the emergency work relief programs in Kansas. The city has several large parks and a number of small community parks, which total between 300 and 400 acres. In all these parks extensive forestry work was completed, all were landscaped, and park benches renewed in each. All trees in the public parks along the streets were trimmed and dead trees removed.

All the 19 parks in Topeka, Shawnee County, have received some improvement. Most of the work, however, has been done on the three largest parks of the city, Gage Park, which is considered one of the outstanding parks in the United States, Garfield Park, and Ripley Park. Improvements in Gage Park included a shelter house which will accommodate about 300 persons at one time, a zoo, a monkey island, a greenhouse, and a canoe lake 750 feet long, which replaces three old mudholes, with a bandstand in the center. The Old Settler's grounds and a log cabin in which many relics of the olden days are on display were added, all buildings were repaired and painted, much landscaping was done, also tree planting, and planting of flowerbeds, roads and sidewalks were built, and the large swimming pool was improved by the addition of a giant slide, a sand beach, and a playground and wading pool nearby for the children.

JOHN G. STUTZ,
Executive Director, The Kansas Emergency Relief Committee.

Park-O-Meters
are controlling parking and increasing revenues in these four cities

DALLAS, TEXAS
990 Park-O-Meters bringing in better than $400 daily.

OKLAHOMA CITY, OKLA.
476 Park-O-Meters in operation.

Here's what one thousand Park-O-Meters would mean to ***your*** city: (1) parking controlled; (2) double parking greatly reduced; (3) increased curb turnover; (4) "parking hogs" and "sleeping cars" eliminated; (5) estimated annual revenue, $120,000.

These statements are not guesswork. They are based on the actual experience of Park-O-Meter operation in Dallas and Oklahoma City. So completely do these attractive little machines solve the parking problem that cities from coast to coast are planning their installation. Your city needs Park-O-Meters. Write or wire us today for complete details.

ST. PETERSBURG, FLA.
150 Park-O-Meters in operation.

EL PASO, TEXAS
500 Park-O-Meters in operation.

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Steel Reservoirs

These two 1,000,000-gallon steel reservoirs, we built in 1935, for the City of Santa Cruz, California, insuring them an ample water supply at gravity pressure.

On a hill, for gravity pressure—for clear water storage on the suction side of your pumps—or for impounding raw water.

A steel reservoir will cost you less, to begin with—we will fully guarantee watertightness, workmanship and material—meaning no leakage loss—maintenance cost will be very low, a coat of paint every few years—and it will last you a long time, 50 years a conservative estimate.

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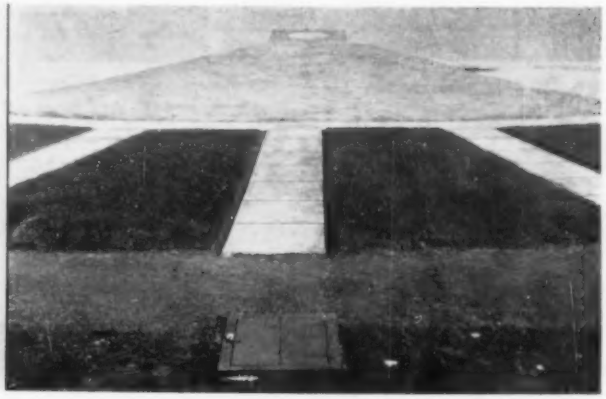
1217 Praetorian Building . . . . . Dallas
619 Rialto Building . . . . San Francisco

HAND-SPRAY APPLICATION OF CUTBACK ASPHALT TO SLAG FOR SURFACE OF TRAP-SHOOTING GROUNDS



ONE OF THE COMPLETED CLAY-PIGEON TRAPS, AT THE EAST END OF MILLER BEACH, GARY, INDIANA

Gary Provides Public Trap-Shooting Grounds

GARY, IND.—Marquette Park, at the east end of Miller Beach, in Gary, overlooking Lake Michigan, offers an ideal location for a public trap-shooting site. The park area proper is 20 to 25 feet above the level of Lake Michigan; the direction is to the north and over the lake, affording a distinctive and uniform background for detection of the clay pigeons as they leave the traps. The natural slope of the sand embankment from the lake up to the park is about 18° to 20° from the horizontal. One of the objectives in proposing a bituminous treatment of this embankment was to bond the surface and hence prevent the blowing of the loose bank sand back into the grass, besides providing an emergency parking area. The idea of including in this improvement a public trap-shooting site was recommended by the Gary Gun Club. It was predicted that, once established, such an enterprise would prove to be self-sustaining. Based on its popularity during the first two months after completion, the truth of this prophecy will be realized.

Previous experience had indicated that surface treatment of the natural sand embankment, even after being brought to grade, was unsatisfactory. To afford a "key material" and one that could be bonded with a bituminous material, it was concluded that a 3- to 4-inch layer of crusher-run slag, obained from the local steel mills, be applied. A small tandem roller was used to partially set the slag in the sand. A moment's reflection will reveal that applying cutback asphalt or any other bituminous material to such area, because of its general lack of stability or load carrying capacity, represented a problem. In the main, the first application of cutback asphalt had to be applied by hand as indicated in one of the snap-shots above. After applying about 1½ gallons of Texaco No. 2 (a medium-viscosity, rapid-curing cutback asphalt) per square yard, the treated surface was allowed to cure for several days. This surface was then sprayed with a second coat of the same asphaltic material in the amount of approximately ¼- to ½-gallon per square yard, after which a liberal coating of beach sand was applied and rolled.

This construction was a WPA project and was recommended by the Park Board of the city of Gary. John Hollenbaugh, Board member, and M. S. Montgomery, Park Superintendent, served as consultants during construction of the work. Ralph L. Hodson of the Municipal Contracting & Supply Co., of Gary, furnished and applied the cutback asphalt. The result is a tight, water-shedding bituminous surface which protects the grass and shrubs from blow-sand, and at the same time affords a picturesque surrounding for the trap house illustrated in one of the accompanying views.

W. L. HEMPELMANN.

Lenoir's Fire-Alarm Boxes Cover the City

LENOIR, N. C.—In this city of about 7,000 population manufacturing is the chief industry. We have ten furniture plants, three veneer plants, two mirror plants, two cotton mills, and many small wood-working plants. All these plants are types that burn very quickly. If a fire gets a few minutes' start, it means that the plant is destroyed and several hundred men are thrown out of work.

Decision to buy an alarm system was probably determined because: (1) the Fire Department wanted it and brought all the pressure possible to bear on the

SENDING THE FIRST ALARM IN LENOIR

Council; (2) the Council realized that quick and accurate alarms might save thousands of dollars' worth of taxable property and prevent hundreds of men from losing their jobs by a fire in one of the plants; (3) the money could be easily obtained through PWA; (4) the reduction in insurance rates would soon pay for the system. All the fires in 1934 (about 50) and those to April 27, 1935, were reported by telephone, and there are many houses in the mill districts eight or ten blocks from a telephone.

Our new fire-alarm system numbers 93 boxes—one for every other block in the business district and about every third block in the residential section. We aim eventually for a box per block throughout the town. Two seconds after the box handle is pulled the bell in the engine house, the diaphone horn, and the gongs in the firemen's homes all sound. Results before and after installing the alarm system were as follows:

March 27 to Aug. 1	Loss
1932	$96,000
1933	42,420
1934	45,066
1935	581

Our explanation of the small loss in 1935 is that every alarm was by box.

Two false alarms were sent in the first Saturday night after the system was completed. We immediately got out handbills offering a reward for information leading to the arrest of persons turning in false alarms. Of four since then, we caught two of the senders.

Our fire apparatus consists of a combination chemical and hose truck new in 1918, a 750-gallon pumper model 1924, and a 12-cylinder quadruple bought in 1934. In 1934 we built both a fully-equipped fire station and a drill tower. The 93 alarm boxes connect with an 8-circuit switchboard and 7-circuit repeater.

A. Y. COTTRELL,
Superintendent of Alarms

Add to the 15-Year Chamber of Commerce List

The attention of THE AMERICAN CITY has been called to the omission of two important names from the list published on page 93 of the January issue, of managing executives of local chambers of commerce and similar organizations throughout the United States who have had fifteen years or more of such service in the civic-commercial organization field. These are: Munson Havens, Executive Secretary, Cleveland Chamber of Commerce, and Arthur S. Dudley, Secretary-Manager, Sacramento Chamber of Commerce. Our apologies to two former Presidents of the National Association of Commercial Organization Secretaries.

MUD-JACK METHOD
for raising concrete curb · gutter · walks · street

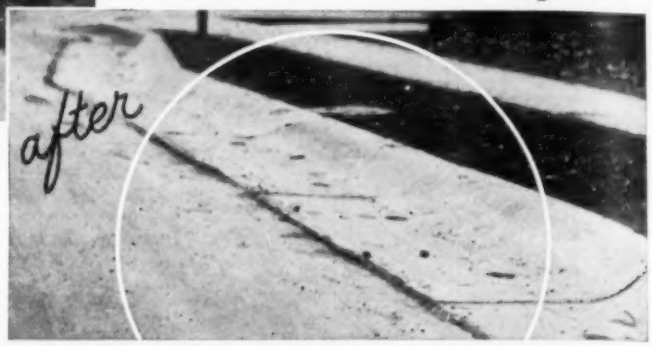
Sunken Curb and Gutter Marked for Reconstruction

but

THE MUD-JACK METHOD *corrected the settlement and saved the reconstruction costs*

Save CURB — GUTTER
WALKS — STREETS

The Mud-Jack method saves the slab —corrects the subgrade—eliminates pedestrian hazards. Write for data to reduce maintenance expense.



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and other equipment purchased from you has accomplished the cleaning of sewers which heretofore were inaccessible with the ordinary run of sewer cleaning tools used in conjunction with rods. In my opinion, the machine is very satisfactory and if properly operated, will remove any ordinary obstruction more economically than is possible with other equipment.

J. H. PHILPOTT, City Engineer,
City of Wabash, Indiana

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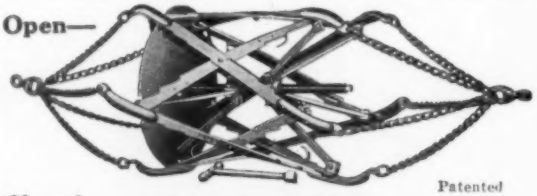

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Closed—

Write for catalog on complete sewer cleaning equipment.

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Do You Want the Names

and addresses of reliable manufacturers of any kind of machinery or material for use in connection with municipal improvement work of any kind? If so, please advice us as to your wants, and we will arrange to have any desired catalogs or prices forwarded to you promptly.

This is a service which we render without charge to all readers of THE AMERICAN CITY or THE MUNICIPAL INDEX. and we hope you will take frequent advantage of it.

THE MUNICIPAL INDEX
470 Fourth Avenue, New York

TRAFFIC CONTROL AND FACILITATION

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; John Gibala, Vice-Chairman; Donald M. McNeil, Dwight M. McCracken, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, John C. Wrighton

Jumping the Yellow in Rhode Island

MORE than a million observations at 21 stations were made by the Rhode Island Highway Traffic Survey, FERA Project No. S F2 39, in order to determine the extent of violations of the red and the yellow, with particular reference to a comparison of the obedience of motorists, in this respect, to the two types of signal control commonly encountered by motorists in that state, that is, fixed-time control and vehicle-actuated control.

"The comparative results obtained with all signals at the various stations grouped under the foregoing classifications were as follows:

FIXED-TIME (6 Stations)—Average cycle in seconds 34—3.6—27

	Week-Days		Sundays		All Observations	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Vehicles observed	125,341	—	44,737	—	170,078	—
Violations, red	1,641	1.31	625	1.40	2,266	1.33
Violations, yellow	4,406	3.52	1,511	3.38	5,917	3.48

VEHICLE-ACTUATED (15 Stations)

	Week-Days		Sundays		All Observations	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Vehicles observed	685,399	—	186,699	—	872,098	—
Violations, red	4,392	0.64	1,221	0.65	5,613	0.64
Violations, yellow	12,600	1.84	4,130	2.21	16,730	1.92

"The fact which attracts attention in this comparison is that the percentages of violation, both as to the red stop and the yellow caution indications, are much higher on the average at the stations which were operated on a fixed-time cycle than at those which were actuated by the approaching traffic as required. Apparently, drivers are impatient of delay caused by fixed-time cycles when there is no cross-traffic to actually warrant their detention, and in consequence twice as many of them take a chance by running through the intersection against the red signal."

Fines Mailed for Minor Violations

SINCE the inception of a Citizens Advisory Traffic Committee in Rochester, N. Y., a year ago, many important changes in traffic and parking regulations have been effected. These include elimination of parking on certain streets during the rush hour, making certain streets one-way streets, moving streetcar stops, establishing bus stops, making changes in traffic signals, and the study of traffic regulations in view of revisions in the present traffic ordinance. A non-fixable tag system has been instituted whereby minor traffic violators can pay fixed fines to a Violations Bureau operated by a clerk of the City Court, without appearing before the Court. Fines can be mailed in. This saves much time of the Court and of police officers. If a recipient of a violation tag feels that he is not guilty, he has the right to appear before the Court as heretofore. Tags are in triplicate, and a copy is sent to the Comptroller, who sees that each case is disposed of by payment of a fine or by court action. The system has been especially helpful in alleviating the parking situation.

City Manager Harold W. Baker is much pleased with the work accomplished by the Committee and has given the assurance that meetings will be continued indefinitely, since traffic regulation is a question which needs constant study. He says: "As changes are put into effect, the Committee is of great help to the administration in answering criticisms and in making the changes effective. Surplus monies taken in by penalties for parking, etc., are to be used in large part towards the purchase of new and better signs, also toward the better enforcement of the traffic ordinance. We are hoping to establish the non-fixable tag scheme for speeding-violations during the coming fall and winter."

The Committee includes the Commissioner of Public Safety (Chairman), the Vice-Mayor, representing the Common Council, three representatives of the Police Traffic Bureau, a city judge, the Commissioner of Railways, the General Manager of the N. Y. State Railways, three merchants, two representatives of the Automobile Club, the District Deputy Commissioner of Motor Vehicles, a member of the Good Roads Committee of the Chamber of Commerce, and the Chairman of the Traffic Committee of the Engineering Society.

More Exhibits in the Chamber of Horrors

PUTTING the fear of agony and death into drivers—that new vogue set by J. C. Furnas—is being practiced, among others, by Liberty Mutual Insurance Co. Case histories from the company's files have been made into mats which are available to local newspapers, civic and safety organizations:

She was jammed against a glass show case. Several muscles and tendons in her lower limbs were severed and when picked up she was bleeding from cuts and bruises all over her body.

Swift and unexpected as was the crash, a look of terror had become fixed on the girls' faces, although they probably never felt the fractured skulls, the crushed-in chests and lacerated limbs that were found when the wreckage was pulled apart to release them.

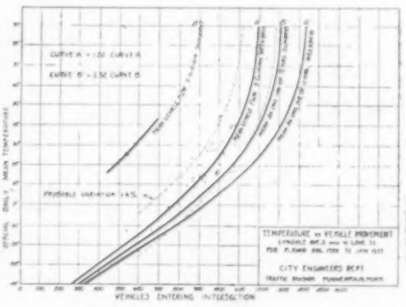
The child became more alarmed and jumped back directly in the path of an oncoming truck, drawing the mother with her. They were both struck and the wheels of the truck passed over the girl's chest. An autoist who took her to the hospital said she screamed constantly, horribly. She soon died of her injuries. The father, who had rushed toward his wife and daughter in an effort to rescue them, was struck by the same truck and dragged to the curb, mangled and dying.

Each mat includes an illustration. Address Alexander Lempert, Editor, Liberty Mutual Automobile Accident Prevention Bureau, 31 St. James Avenue, Boston.

Temperature and Traffic Intensity

STUDIES conducted by the City Engineer's Department, Traffic Division, Minneapolis, J. C. Vincent, Traffic Engineer, reveal an interesting relationship between temperature and vehicular flow. Of the two factors, inclement weather and temperature, it was found that the effect of the former was relatively negligible, while the effect of the latter, over a total variation of 120° F. for Minneapolis, proved to be marked and to a considerable degree predictable.

Using temperature as an index, it has



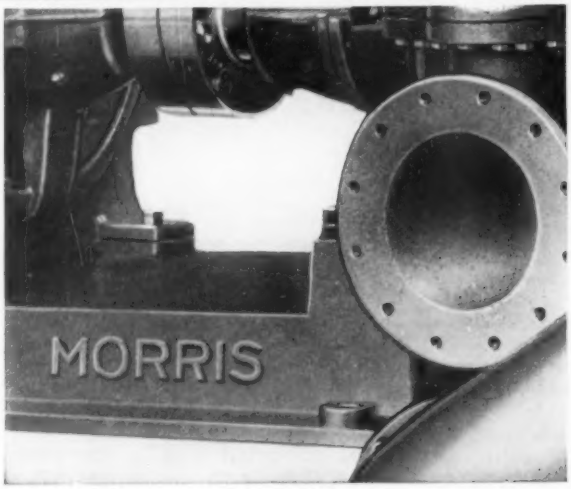
been possible to predict season and annual flows, and to plot vehicle traffic to a flow map or standard day, with a reasonable degree of accuracy.

A "Summons" to Safety

A NEW form of safety drive consists of a summons handed by policemen to every motorist of Mount Vernon, N. Y., to attend the newly organized Permanent Automobile Safety Council.

The MORRIS HYDRAULIC COLUMN

News of interest to Centrifugal Pump Users



A firm foundation for perfect pump performance . . .

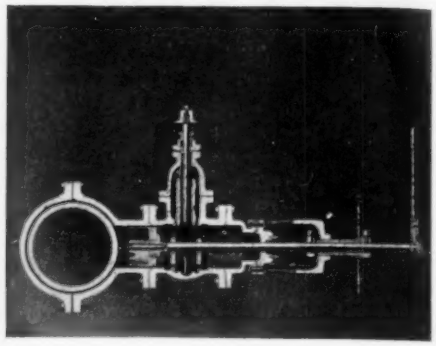
The first American centrifugal pump was built in what is now the Morris plant. The name MORRIS first appeared on a centrifugal pump bedplate over two-thirds of a century ago, and today Morris has an unequaled experience of 70 years to guide its centrifugal pump designs. That is one of the reasons why Morris Pumps are noted for their high efficiencies, long life and low maintenance expense. You can always depend on Morris recommendations to assure perfect pump performance. If you are considering the purchase of centrifugal pumps for any service, write for Morris Bulletin 152.

Dredging the dregs from drinking water . . .

The old definition "Dirt is matter out of place" is particularly true in a water supply reservoir. How to remove it? Simple —just set up a Morris Hydraulic Dredge and the accumulated silt and sediment will be quickly and economically sucked out. Many water department superintendents who had begun to worry about decrease in reservoir capacity and dirt in water supply lines from this cause, have found a Morris Portable Dredge the answer to their problem. A Morris Dredge is also the most practical means of enlarging or deepening a reservoir, developing swamps into park land, improving shore lines, and similar municipal improvements. Bulletin 151 explains how. Your copy sent on request.

For authoritative recommendations on any pumping or dredging problem, write to Morris Machine Works, Baldwinsville, N. Y.

Export Office: 30 Church Street, New York



We Attach a Valve, Open It, and Tap the Main Through It!

THIS simplified illustration shows the manner in which we have been tapping branch connections into old water mains with every success for two generations.

A sleeve is permanently attached around the main where the tap is to be made. A special tapping valve is permanently attached to it and a Smith Tapping Machine is temporarily attached to the valve.

With the valve fully opened, the cutting mechanism is advanced to meet the main and rotated to make the cut. The cutter, with the cut-out piece, is withdrawn, the valve closed, the tapping machine removed and the new branch pipe line is permanently attached to the valve.

It is simple enough when you know how—and have a Smith Tapping Machine. But have you one? They are standard equipment in most waterworks departments; and they come in several sizes, to handle mains from 2" to 42" inclusively.

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Traffic Control Manual Just Out

THE merchandising expert wants to make fifty articles to serve a given purpose, whereas the engineer's dream is to develop one article that exactly fits the purpose. But both the salesman and the engineer are of one mind when it comes to receiving orders—they want those orders to be clear, simple, direct, unmistakable. The purpose of the new Manual on Traffic Control Devices is to make all signs and signals with a given purpose look the same as well as mean the same, so that they may be heeded almost instinctively.

As long as the automobile and truck remained comparatively local vehicles, the fact that such signs and signals as there happened to be were different in different localities was not important. Similarly, as long as there were only a few million cars scattered over several hundred thousand miles of streets and highways, the purpose of signs was largely one of public convenience, not matters of life and death as now. If in one town the word CAUTION happened to be in green letters on a white background of a diamond-shaped sign, and in another town it was in black letters on an orange field, it was all right with the driving public in their respective communities. But when half the American public got itself into 24,000,000 swiftly-moving vehicles which the other half was compelled to try to avoid, and 200 miles through several states became an easy day's run, and thousands of local police organizations were asked to control the melée, it became apparent that common definitions would have to be arrived at.

This was the job undertaken by the American Association of State Highway Officials ten years ago which culminated in its manual for use upon the rural highways. Responsive to a growing demand for a similar manual for urban use, the National Conference on Street and Highway Safety requested the American Engineering Council to produce the work. That manual, approved in 1930, embraced traffic signals and markings. Both manuals in their preparation were coordinated with the newly completed Uniform Vehicle Code and the Model Municipal Traffic Ordinance. Both these manuals have now been consolidated by a Joint Committee on Uniform Traffic Control Devices appointed jointly by the American Association of State Highway Officials and the National Conference on Street and Highway Safety. The job it has achieved was to bring all standards for traffic control devices under one cover. It also presents much new matter on traffic islands and signals.*

The character of the job, its purpose and possibilities for reducing accidents and facilitating traffic, warrant the fullest cooperation on the part of both municipal and state highway officials. In fact, this system of uniformity is an especial call to municipal officials, because there are so many of them and more than 90 per cent of these devices are under their jurisdiction.

What form shall this cooperation take? Shall signals and signs that do not conform to the standards not only accepted by these two authoritative associations, but adopted by the American Standards Association as well, be immediately revised or replaced? This is too much to expect in many instances. It is not too much to expect and to ask that all natural replacements and new installations be as recommended in this manual.

All concede that even the complete achievement of uniformity in all traffic-control devices will not work a miracle. There will continue to be accidents, due to speed and the imperfections of the driver and the carelessness of the pedestrians; but these accidents will be narrowed down to the group of causes that remain after all uncertainty as to the meaning of signals has been removed.

* Apply to National Conference on Street and Highway Safety, Washington, D. C.

Non-Uniformity in Traffic Practices Shown by Road Builders' Report

THE present situation regarding traffic regulation in 33 major cities is outlined by a committee of the American Road Builders' Association headed by Frank P. McDevitt, Director of the Department of Streets and Sewers, St. Louis.

Practically nothing has been accomplished toward uniformity of traffic signals, says the report, although 22 correspondents state that such indications should be standardized throughout the nation, and would be willing to agree to these standards provided individual initiative would not be destroyed.

In 22 of the 33 cities the Go signal is followed by warning of amber or yellow. One city uses a distinct left-turn signal, a white light preceding the green Go. Half these municipalities use a bell or a whistle. Vehicle-actuated controllers have been installed in six communities. Twentry-three have the progressive movement type and twelve use a newly devised program-type timer. The progressive systems are almost universally interconnected, though six cities are substituting the synchronous motor and depending on line frequency to hold the signals in step. In only eight cities are traffic signals maintained 24 hours. In most instances they are turned off to reduce unnecessary regulations.

Locating traffic signs, particular those that require the motorist to stop, has become almost as great a problem as the regulation of parking. While there has been practically no progress in the effort to make uniform the various traffic-signal indications, it is encouraging to report that 27 cities now use the octagonal-shaped STOP sign with the yellow background. Reflector buttons are used in 26 cities.

Only 4 of the 33 cities use swivel-top school-stop signs. They are used in St. Louis to the number of 1,000 and during the last three years there has not been a single fatal accident involving a school child between school and home, and there have been a billion school-child street crossings. These signs are turned on a swivel to face traffic and require a full stop during school hours, after which they are turned by the police or schoolboy patrol, so that their surfaces are parallel with the curb and stopping is not required. They are octagonal with red letters on a yellow field, and are 20 inches between parallel edges. Passing these signs carries $3 for the first offence, then $5, and as much as $500 and six months, and the regulation is enforced.

Twenty-one cities use a painting machine in addition to hand painting, and 12 do not. Street-marking lacquer is used in 23 cities. Center lines are white in 22 cities and yellow in 12. Sixteen cities paint crosswalks by machine. Thirteen cities use a white cement inset in the wearing surface of the paving.

Safety Zones

The design and illumination of street-car safety zones lacks uniformity to the same extent as traffic signal indications.

Center stripes for separation of traffic are used in wide streets of 22 cities. In nine cities these are illuminated, and in five cities other types of substantial traffic strips are used and are illuminated.

Money

Traffic regulation, in the opinion of 32 reporting cities, has been hampered by insufficient appropriations. In only one community have there been sufficient funds to carry out this work.

Fellowships in Traffic Control

THE Bureau for Street Traffic Research of Harvard University announces fifteen graduate fellowships, each with a stipend of $1,200 plus up to $200 for travel and field investigation. The regular annual tuition fee of $400 will be deducted from the fellowships, which have been made available through a gift to the University by the Automobile Manufacturers' Association. The officers of instruction are Miller McClintock, Director of the Bureau, and Maxwell Halsey, Assistant Director. Each of two full courses in street and highway traffic control consists of three one-hour periods a week, and additional problems, assignments and field work.

The Bureau for Street Traffic Research in Harvard University asks the cooperation of city engineers, chiefs of police and other local officials in bringing to its attention men who might be especially eligible for appointment to one of these fellowships.

L.F.C.

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That's why "Lynchburg" has been able to standardize most of the so-called "specials"—assuring prompt, on time delivery.

Bell and Spigot Pipe and Fittings
From 4" to 54"

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Cast Iron Flanged Fittings and
Flanges from 1" to 84"

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WATER MAIN CLEANING"

The above is the title of our latest booklet telling, very briefly, the WHY and the HOW of water main cleaning. This booklet, we believe, should be in the possession of every water works department:—Because even if the mains are not at this very moment protesting that they need cleaning (making their wants known by the low pressure they display at hydrants and faucets), such a condition is bound to make its presence felt sooner or later. So be prepared! Write for *your* copy of the booklet *today*.

NATIONAL WATER MAIN CLEANING COMPANY

50 CHURCH ST. NEW YORK

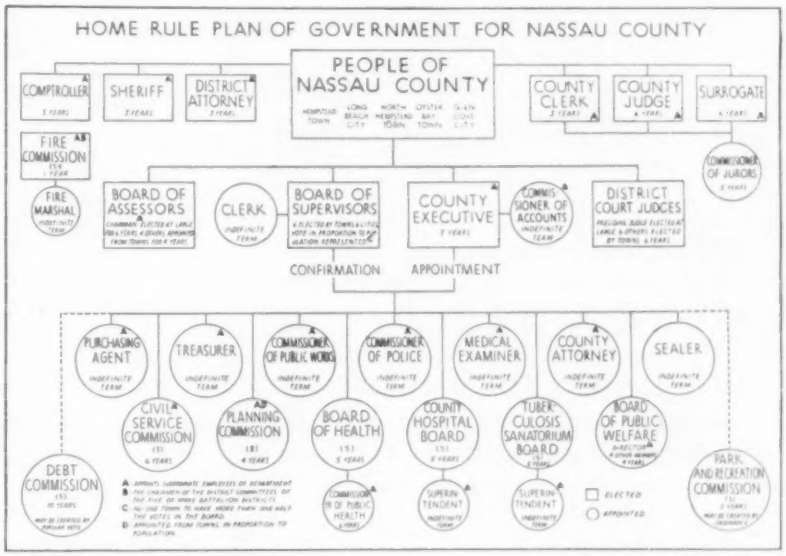
Home-Rule Charters Proposed for Westchester and Nassau Counties, N. Y.

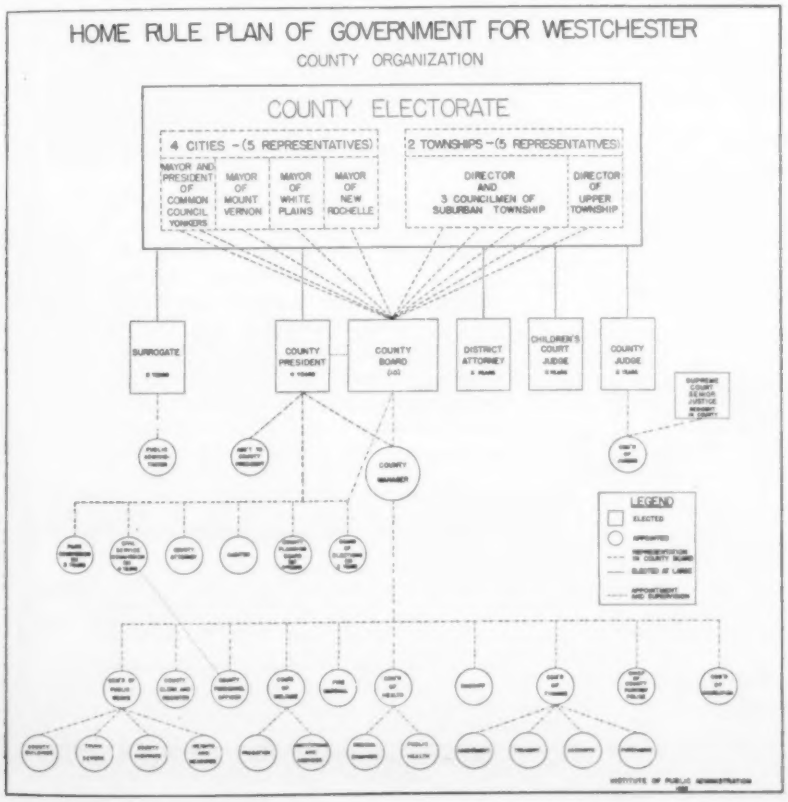
ACTING under the constitutional amendment approved by the voters last November, which authorized the Legislature to grant home-rule charters to the counties of New York State, proposals for such charters were formulated last month by the Westchester County Commission on Government and by the Nassau County Commission on Governmental Revision. Both charters embody attempts to meet conditions which are among the most difficult and complicated to be found in any counties in the United States. In both cases the commissions retained expert assistance in the work of charter drafting—Luther Gulick, Director of the Institute of Public Administration, being Westchester County's technical advisor; and Thomas H. Reed, Director of the Consultant Service of the National Municipal League, performing a similar service for Nassau County. Excerpts from the Commission reports follow:

"*Westchester County* has three clearly defined population groups, consisting of the residents of the cities, the suburbs, and the open country. Each group has its own needs and desires and is entitled to its own local self-government, and to an over-all county government to deal with common problems.

"The Home Rule Plan of County Government is designed to meet these desires and needs. It provides self-governing cities, self-governing villages, and two self-governing townships, one suburban and one rural, and provides for a federation of these governments to form the county government.

"Instead of 22 governmental units with representation on the county board, there will be 6. Instead of 150 units with the independent right to borrow, in some cases with no upper limit, there will be but 30 final authorities with the right to approve debts, and they will all be subject to constitutional and statutory limits. Instead of 67 judges of inferior jurisdiction, there will be but 6 courts with 10 to 12 judges. Instead of 45 police departments, there will be but 7. Instead of 46 assessing officers and a Board of 42 political equalizers, there will be a single department with a permanent qualified staff. Instead of 12 health departments and 23 public welfare agencies, there will be but one health department and one welfare department, which can easily cooperate in dealing with their joint problems. Instead of having an unwieldy county board of 42, there will be a working legislature of 10, all drawn from the legislative personnel of subordinate units. Instead of having a headless government, there will be an elected executive and an appointed business manager. Instead of wasteful overlapping services and various tax bills, there will be a single government rendering a particular service in a given area, and ultimately but a single tax bill for each property. Instead of a long ballot and the danger to local autonomy involved in the present system with its continual flood of special legislation from Albany, there will be short ballots and home-rule cities, a home-rule suburban area with its self-governing villages, and a home-rule rural area, with necessary power in the county to pass most of its own "special legislation," subject to referendum if local governments are disturbed."





NASSAU COUNTY

"The proposed *Nassau County* charter provides for a county executive, elected at large, to whom is entrusted complete command of the administrative side of the government. It retains the present board of six supervisors as a strictly legislative body. The county executive is to preside over the board of supervisors and have the power to veto over its acts, and a two-thirds vote would be required to pass any measure over his veto. All appointive heads of departments and county boards and commissions would be appointed by the county executive with the confirmation of the board of supervisors.

"The following functions now performed by the towns and cities are transferred to the county: assessment of property for taxation; health administration; and welfare administration. Planning (but not zoning) and the supervision of special districts for sanitary and water-supply purposes are also transferred from the towns to the county. The villages surrender their health activities to the county, and the county undertakes to remove snow from and to light all county roads and highways wherever situated.

"Tax assessment for all purposes, except city and village purposes, is centralized in a county board of assessors. The chairman of this board is elected from the county at large.

"Among other important articles of the charter is that on public works, which, besides setting up a department of public works to replace the county engineer's office, confers upon the board of supervisors ample powers to work out, with proper safeguards to protect the taxpayer and existing public works of villages and districts, the sanitation, drainage, garbage-disposal, and water-supply problems of the county, and especially to protect its threatened ground-water sources."

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THE detailed water rates and service charges of 191 cities in the United States have been reprinted in pamphlet form from the 1935 issues of THE AMERICAN CITY. Many orders for this January, 1936, pamphlet and for the preceding pamphlet (January, 1935, covering 237 cities) have already been received. Either pamphlet is sold separately at one dollar each, or the two are sold together for one dollar and fifty cents.

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Current Items from the Public Administration Clearing House

Uneconomical Economies in Delayed Maintenance

LOCAL governments, watchful lest expenditures exceed income, thus creating financial deficits, should beware of another kind of deficit—accumulated maintenance and replacement needs, warns Frank W. Herring, Executive Director of the Joint Secretariat of the American Society of Municipal Engineers and the International Association of Public Works Officials.

Writing in the January issue of the *Public Works Engineers' News Letter*, Mr. Herring says that in many American communities the accumulated deficit of maintenance and replacement represents "a situation of extreme hazard." Streets, bridges, sewers, water systems, public buildings and many other highly prized and indispensable physical facilities of community life are slowly but surely "going to pot," he comments.

"Not long ago a metropolitan city of more than a million population reported that its rate of replacing worn-out streets was but a fraction of the rate at which they were wearing out. Within the past month another metropolis let it be known that city property of all kinds has been wasting away during the past four years. Smaller communities are in the same boat. Funds available for the preservation of the value of existing public property are entirely inadequate for the purpose."

Cities and counties may avoid immediate financial embarrassment by cutting down on their funds for maintenance and replacement, he points out, but unless they are prepared ultimately to abandon the properties they are now neglecting, the rub will come when complete replacement becomes necessary.

"When financial survival alone was a pressing problem a year or two ago," Mr. Herring says, "drastic emergency measures were justified. The indefinite continuance of such measures is suicidal. It is essential that the deficits in maintenance and replacement that have accumulated during the emergency years be wiped out at the earliest possible moment. If continued much longer, present levels of expenditure for this purpose will spell havoc for the American community."

Annual Appraisal of Municipal Reports

CITIZENS of Berkeley, Calif., Cincinnati, Ohio, and Norfolk, Va., who read the annual reports prepared by their administrators in 1935 can take pride in knowing that they were reading the best literature of its kind. Reports of these three cities tie for first place with a rating of 95 on "general digestibility," according to Clarence E. Ridley, who, as a University of Chicago professor, makes the appraisal for the ninth successive year for *The National Municipal Review*.

In 1935 a total of 55 cities gave a formal account of their activities, exceeding the previous "high" of 47 established in 1934. As to quality, comments Mr. Ridley, the general average for all reports submitted during 1935 excels that of any previous year, 24 of them, or nearly one-half, rating above 70. Among the exceptionally high scorers were Two Rivers, Wis., with a rating of 93; Memphis, Tenn., 92; Dayton, Ohio, 91; Auburn, Maine, 90; Albert Lea, Minn., and Austin, Texas, 89.

Other cities scoring 80 or above were: Dallas, Texas; Piqua, Ohio; Stratford, Conn.; Pasadena, Calif.; Alameda, Calif.; Milwaukee, Wis.; Oregon City, Ore.; Kenosha, Wis.; Staunton, Va. Six cities that rated from 70 to 79 were: Bangor, Maine; Hackensack, N. J.; Mangum, Okla.; Belfast, Maine; San Mateo, Calif; and Ironton, Ohio. Thirty other cities were given honorable mention. Grading is based on promptness of publication date, physical make-up, and content.

Mr. Ridley sees encouragement in comparing the average 1935 report with the average reports of earlier years. Since 1927, the minimum qualifying standard for a report to be included in the appraisal has been raised twice. Then it was 50; now it is 70. Yet more cities met this higher standard with their 1935 reports than in any previous year. Also comforting, says Mr. Ridley, is a growing tendency to make the reports brief. In 1927 the average length of the public report was 90 pages; in 1935 it was 56 pages. Promptness in issuing reports shows a reduction of three weeks in comparison with the figure for last year.

Government by Council-Manager

THE 29th year since the council-manager plan of municipal government was inaugurated in Staunton, Va., finds 438 municipalities and 8 counties so governed in this country, and 19 communities in foreign countries, according to a directory just published by the International City Managers' Association. A total of 21 municipalities and 2 counties adopted the plan in 1934 and 1935.

In this directory it is shown that:

Nearly one in every five cities of over 10,000 population in the United States is now operating under council-manager government. (Over 2,000 of the 6,251 municipalities with over a thousand people cannot adopt manager charters without special action of state legislatures.)

Michigan has the greatest number of council-manager municipalities—46.

Sixty of the 438 municipalities have been under the council-manager plan for 20 years. Texas has the most of these —9.

In 27 years, only 21 cities have abandoned the plan. During the last five years there were five cities, one town and one village which abandoned it, out of a total of 55 referenda.

The council-manager plan is most popular in cities from 50,000 to 100,000, 28 per cent of all cities in this population group operating under it. Twenty per cent of the cities in the 25,000 to 50,000 group, 18 per cent of those over 100,000, and of those in the 10,000 to 25,000 population class, 9 per cent of the municipalities from 2,500 to 10,000, and 2 per cent of those from 1,000 to 2,500, have council-manager government. Seven towns and villages under 1,000 population have council-managers.

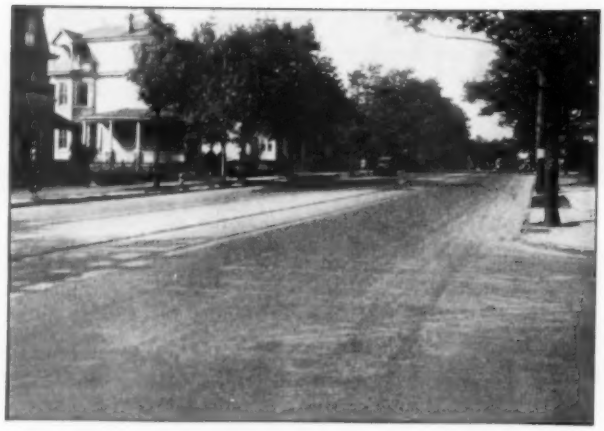
Cincinnati, Ohio, a manager city since 1925, is the largest in the "big city" class under this form of government. Polk City, Fla., with a population of 222, is the smallest.

Municipalities adopting the plan in 1935 included ten with populations less than 10,000; one between 10,000 and 25,000; one over 50,000; and one over 100,000.

How Cities Feel About WPA and Relief

WHAT 20 "sample" communities of the country, widely different in size and geographical location, think of the present status of their relief programs and the future prospects for adequate care of indigent unemployed through WPA and direct relief is contained in the results of a questionnaire survey by the International City Managers' Association.

The report, which appears in the January issue of *Public Management*, indicates feeling on the part of the cities that the "facile distribution of the relief load among several levels of government according to employability is not developing precisely according to plan." According to the cities' estimates, the proportion of "employables" who are and will be taken care of under WPA varies from 20 to 100 per cent. Only three cities believe that all the people without jobs who can work can be assigned to WPA projects. A number of cities feel that eligibility requirements for work under WPA have two undesirable effects: (1) the requirement that applicants must have been on relief during the summer ignores seasonal unemployment, a disturbing factor particularly in northern cities; (2) the "seniority" requirement for eligibility penalizes those who have avoided



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relief thus far and places a premium on continued attachment to relief rolls.

Those "employables" not reached by WPA will be cared for generally in the same manner as unemployables—by direct relief, the survey shows. West Virginia cities, where local revenues have been depleted excessively by tax limitations, report no plans for handling "employables," and the same is true of Fort Worth, Texas.

Cities are following many kinds of procedure to cope with the problem of caring for unemployables and WPA ineligibles created by the stopping of Federal funds for direct relief. In Colorado a 2 per cent sales tax is shared with the counties for relief purposes. Columbus, Ga., expects to meet the problem by a combination of county, city and private resources. Most communities feel that state aid must be increased if relief funds are to be adequate. At least four communities must borrow to meet relief needs.

Eight of the 20 communities studied considered that under present conditions state, municipal and private funds would not be adequate to meet relief needs. Four city managers anticipated suffering in their communities during the winter, one of them believing that it would be the "worst winter yet."

Nine of the 20 city managers consulted "scored the vacillating policy of the Federal Government." They were practically agreed that any policy consistently followed was preferable to the present "month-to-month" policy. The officials also fear a sudden cessation of WPA in the spring which, they feel, would produce an economic collapse similar to that caused by the liquidation of CWA in 1934. One manager feels that the limit of productive expenditures on "make-work" programs has been reached and that there must be a return to direct relief. Reports were almost unanimous that Federal or state governments must assume a major portion of the relief load for "unemployables" and "employables" alike in the future as in the past.

Arlington County, Virginia, reports that it has no relief problem at present and therefore has no WPA experience to report.

Civil Service in 1935

CIVIL service, writing its history for 1935, has four significant accomplishments to note, according to the January issue of the *Civil Service Assembly News Letter:*

1. Publication of the findings and recommendations of the Commission of Inquiry on Public Service Personnel, which heard what officials and laymen from nearly thirty cities had to say about the working of the merit system in public personnel administration.

2. Launching of a two-year campaign by the National League of Women Voters on behalf of the merit system in government.

3. Adoption of local civil service provisions by a number of cities and counties in the United States, including Bridgeport, Conn.; Clearwater and Jacksonville, Fla.; Jefferson County, Birmingham and Bessemer, Ala.; Memphis, Tenn.; Waco and El Paso, Texas; Flint and Dearborn, Mich.; and San Diego County, California.

4. Establishment of a Graduate School of Public Administration at Harvard University. This will be opened in September, 1937, after a commission of five leading educators and students of governmental administration has made a comprehensive report on university education for public service and set up recommendations for the school's organization.

Less spectacular, but of basic value, the *News Letter* comments, were the steady advances made in recruiting, classification, service rating and other technical personnel functions. This is an important function of the Civil Service Assembly, which established its international headquarters office in Chicago also during the past year.

Review of Police Progress in 1935

EXPANSION of the police training program is rated the most outstanding achievement made in the police field last year by the *Police Chiefs' News Letter*, official bulletin of the International Association of Chiefs of Police. Most significant of the training courses, it points out, is the National Police Training School of the Federal Bureau of Investigation, which graduated 25 state, county and municipal police officials from its first session and is now about to open its second school. New training courses inaugurated included those in Kentucky and West Virginia, which were worked out by police officials and the state leagues of municipalities. The Pennsylvania State Police School was thrown open to county and municipal police officers. Short-course programs were continued in New York, Virginia, Kansas, Northwestern and Ohio State Universities, Hobart College and other institutions.

Considerable progress is noted in universal identification. Voluntary fingerprinting received some impetus, the civil file of the Federal Bureau of Investigation now containing approximately 90,000 prints in addition to more than 5,500,000 fingerprints of criminals. New methods of identification such as talking motion pictures and eye photographs were developed.

By the end of 1935 approximately 300 cities and 15 states were operating police radio systems, an increase of about 100 stations during the year. Approximately 75 municipalities installed two-way police radio. The Associated Police Communication Officials, organized during the year, developed a plan for interstate radio communication which has been indorsed by the International Association of Chiefs of Police.

Significant steps were taken to reorganize police agencies in Minnesota, New York, Texas, Pennsylvania and other states. In Minnesota and North Carolina large additions were made to the personnel of the state highway patrols. In New York the reporting of criminal statistics to the State Department of Correction and the forwarding of fingerprints to the Federal Bureau of Investigation were both made mandatory. In Texas the rangers were consolidated with the state highway patrol, and new identification, communications and intelligence units were established. In Pennsylvania industrial police were made illegal.

Great interest was shown in the possibilities of interstate crime compacts. The Interstate Commission on Crime, established late in the year, began immediate drafting of interstate crime compacts, and a number of proposals were tentatively approved before the end of the year, for submission to state legislatures.

Increasing attention was given by police departments to traffic safety, through the extension of accident investigation and prevention bureaus, traffic safety and education cars, and drives on traffic violators. Purdue University established a Public Safety Institute.

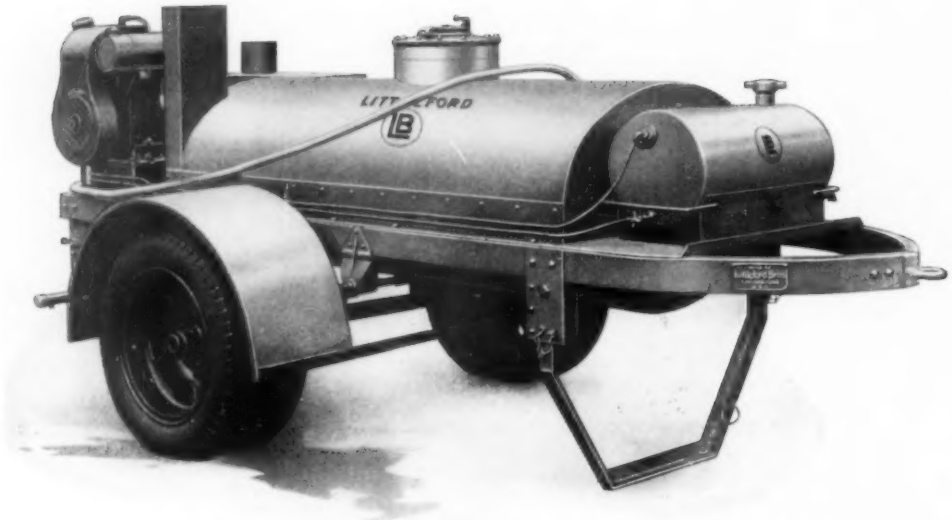
The *News Letter* comments that all police and safety organizations will probably make an even more determined attempt in 1936 to check the continued rise in traffic accidents and fatalities. It is estimated that approximately 36,000 persons were killed in traffic accidents in 1935.

Previous Positions of Public Works Officials

OFFICIALS heading public works departments in American cities with 10,000 or more population are appointed or elected from some branch of public service more often than not. This was the finding of the Joint Secretariat of the American Society of Municipal Engineers and the International Association of Public Works Officials, whose picture of the "average" public works officials, derived from an inquiry about 200 of them, appears in the current issue of the *Public Works Engineers' News Letter.*

Appointments and elections from the ranks of existing city employees account for 89 public works heads, and were made from such offices as assistant city engineer, city engineer, councilmen, assistant superintendent of public works and building inspector. Thirty-three others, appointed or elected from the public service, prior to their appointments were engineers for state highway commissions, county engineers or surveyors, municipal engineers or city managers, engineers in forestry service, CWA or PWA officials, etc. Forty men who were in private work at the time they were called to public works positions list prior work as that of consulting engineer, railway engineer, contractor, salesman, insurance man, etc. Thirty gave no information as to previous positions.

Most frequently on the list was found the public works official with four years or more of college training. He was already in the employ of the city as assistant city engineer at the time of his appointment to head up the community's public works activities.



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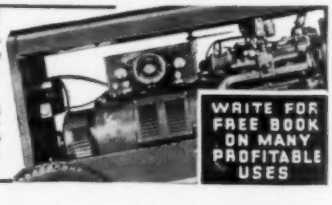

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Non-Conforming Use—Reconstruction

CONNECTICUT.—*Piccolo v. Town of West Haven*, 181 Atl. 615 (Supreme Court, November 5, 1935). This is an application to reconstruct a building destroyed by fire. Appellants' building was a non-conforming use of their property, which it was the ultimate purpose of the zoning regulations to exclude from the area in question. They contemplated that such buildings should be reduced to conformity as completely and speedily as possible, with due regard to the interests of those concerned, and that in no case should this non-conformity be allowed to increase. The regulations, reasonably construed, would not require an exact reproduction of the old building, and if a similar use of the building is intended, minor variations in its interior construction or otherwise would not justify a holding that the new building was not a substantial reconstruction of the old one. But the proposed new building would have a frontage upon the street 25 per cent greater than the old, and, moreover, would result in the whole frontage of the lot being built upon, thus substantially increasing the non-conformity. Having in mind the object sought to be attained in the zoning regulations, in the light of which the provision permitting reconstruction should be read, it cannot be said that the board of appeals acted arbitrarily or illegally in holding that this was not a "reconstruction" of the old building.

Nor was the board in duty bound to exercise its discretion to vary the application of the regulations on the ground of hardship, since the applicants could have reconstructed their building with a frontage of forty instead of fifty feet.

Zoning Ordinance—Public Property

KANSAS.—*Puhr. v. Kansas City*, 51 Pac. (2v) 911 (Supreme Court, December 7, 1935). In 1934, the city of Kansas City enacted a zoning ordinance creating residence districts. The ordinance provided that no building or premises should be used, and no building should be erected in a residence district, except for one or more enumerated uses, among which was "11. Public and Semi-Public uses as provided in Section 8."

Section 8 contained the following:

"The Board of Commissioners [the governing body of the city] may by special permit after public hearing authorize the location of any of the following buildings or uses in any district from which they are prohibited by this ordinance: "8. Public utility."

Plaintiffs own a lot in a residence district on which stands a dwelling house. They allege that they purchased the lot and erected the house because the lot was in a zoned residence district, and they could be assured of a quiet district in which to reside. In the year 1934 the Board of Public Utilities of the city erected a water tower and tank on a lot, owned by the city, and adjoining plaintiff's lot. No application was made for a permit to erect the structure. No hearing was had, and no permit to erect the structure was issued. Plaintiffs contend that they have a cause of action for damages for non-compliance by the Board of Public Utilities with the zoning ordinance.

The Court holds that the water tower and tank do not constitute an unlawful structure, and do not constitute a nuisance per se because of non-compliance with the zoning ordinance. While maintenance and operation of a water plant fall on the proprietary rather than on the governmental side of municipal power, the business has a district governmental aspect. Water is provided for protection against fire, for sanitary purposes, and for other purposes falling within the public power.

The term "public utility" as used in the zoning ordinance doubtless applied to a public utility such as a privately owned water plant, and not to the city's own plant. The law authorized the Board of Public Utilities to operate the Water Department of the city in its own way, without consulting anybody. While it may be assumed that the Board of Public Utilities will act in a manner compatible, as far as possible, with the purpose of the zoning ordinance, the ordinance does not impose any condition on the exercise by the Board of its best judgment with respect to what efficient water service demands.

EDITOR'S NOTE.—With regard to zoning regulations with relation to public property, see the New York case of *O'Brien v. Town of Greenburgh*, in these Notes for March, 1933, with the editor's note on it, referring to other cases on the same subject.

Recent City Manager Appointments

L. P. COOKINGHAM, former City Manager of Clawson, Mich., and for the past five years City Manager of Plymouth, Mich., was selected the first City Manager of Saginaw, taking office January 6, when the new Council was installed.

George R. Dempster, City Manager from 1929 to 1931, again became City Manager of Knoxville, Tenn., on January 6. He succeeds W. W. Mynatt.

Clarence H. Elliott, former Manager of Oak Park and more recently County Relief Administrator for Washtenaw County, became City Manager of Plymouth, Mich., on January 11. He succeeds L. P. Cookingham.

Frank W. Haines is now City Manager of Dexter, Maine, succeeding Samuel B. Furbish.

A. S. Holm, City Treasurer for six years, has become City Manager of Rapid City, S. D., to succeed E. M. Sneckenberger, who resigned on January 6.

A. J. Lauber replaced Robert L. J. Wagar on January 1 as City Manager of Sandusky, Ohio.

T. Lee Lemmon, City Clerk, was appointed City Manager of Cape May, N. J., on January 1. He succeeds R. B. Dean, who resigned some weeks previous.

Ralph Pancake is City Manager of South Charleston, Ohio, replacing Charles D. Sprague, who held that office for thirteen years.

LeRoy C. Purdy, City Engineer, was appointed the first City Manager of Schenectady, N. Y., effective January 1.

John T. Rawlings, for the past eight years County Engineer, has been appointed City Manager of Newport, Ky., to succeed C. E. Wallingford, who resigned on January 6.

Clarence A. Smith, former Clerk of the County Board, was appointed first County Manager of Monroe County, New York, and took office on January 2.

Wilbur H. Story succeeds Pearl A. Lewis as City Manager of Springfield, Ohio.

CLARENCE E. RIDLEY,
Director, International City Managers' Association.

The Municipal Bond Market

Recent sales of new issues from the January numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$350,000	Hartford, Conn., Refunding	1	1-5 Ser.	.93
100,000	Warren Co., New York, Highway	2.20	11.85 Avg.	2.17
340,000	Lynchburg, Va., Water Works	2.25	3-19 Ser.	2.22
200,000	Mansfield, Ohio, Sewage Disposal	2.5	8.25 Avg.	2.44
248,000	Monterey Co., Calif., Court House	2.5	13 Avg.	2.45
170,000	Kaukauna, Wis., Sewage-Disposal Plant	3	10 Avg.	2.59
1,102,000	Houston, Texas, School	3	15.33 Avg.	2.98
400,000	Yonkers, N. Y., Assessment	4	7 Avg.	3.28
227,000	Phoenix, Ariz., Storm Sewer	4	16.25 Avg.	3.81
1,500,000	Louisiana, Highway	4.5	17.85	3.93
105,000	Cushing, Okla., Electric Power and Transmission Equipment	4	4.66 Avg.	4.44

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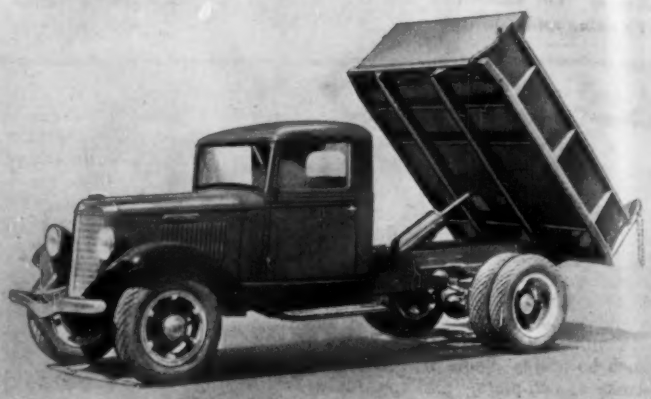

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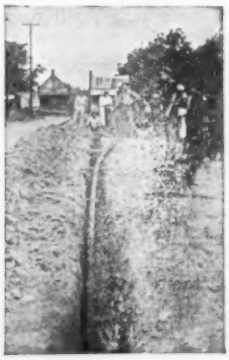

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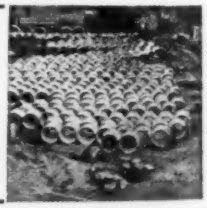

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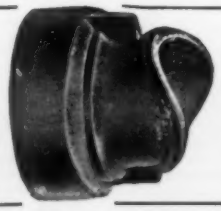

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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Accidents

Under statute city held liable for damage inflicted by fire truck because of negligent failure to maintain brakes in proper condition (Schenectady County, N. Y., County Court: *Hardin v. City of Schenectady*, 278 N. Y. Supp. 28.)

City held liable for death of boy resulting from fall of earth in sand-pit due to dangerous condition caused by city prisoners and employees working under street commissioner (Kansas City, Mo., Court of Appeals: *Brown v. City of Marshall*, 71 S. W. 2d, 856).

Contracts

City held liable for contractor's loss due to engineer's concealment of mistake in locating project (United States Circuit Court of Appeals, Fourth Circuit: *City of Wheeling v. John F. Casey Co.*, 74 Fed. 2d, 794).

Finance

Town created out of part of territory of an adjoining town held empowered to refund its part of debt assumed on its incorporation, although other town refused to refund its part of the debt (Florida Supreme Court: *State v. Town of Boynton Beach*, 156 So. 539).

Municipal Utilities

Grant of franchise to electric company held not to preclude municipality from establishing its own plant to serve private consumers (United States District Court, Northern District of Ohio: *Ohio Electric Power Co. v. Village of Oberlin*, 9 Fed. Supp. 469).

Ohio municipalities held empowered to supply electric service beyond boundaries (Ohio Court of Appeals, Wayne County: *Miller v. Village of Orrville*, 192 N. E. 474).

Cities' contracts to purchase plant equipment payable out of future net earnings of plants held invalid and subject to injunction at suits of taxpayers (Kansas Supreme Court: *Kansas Power Co. v. Fairbanks Morse & Co.*, 45 Pac. 2d, 872, and *Kansas Electric Power Co. v. City of Eureka*, 45 *Pac.* 2*d*, 880).

Scheme for acquiring electric lighting equipment and paying for it out of a fund created by city paying itself for electric service held invalid as attempting to evade prohibition against sale of bonds below par and as creating indebtedness without electoral assent (Missouri Supreme Court: *Sager v. City of Stanberry*, 78 S. W. 2d, 431).

Official Bonds

Police officer's official bond held not to cover unlawful arrest of an individual (Louisiana Supreme Court: *Martin v. Magee*, 155 So. 433). Nor to cover killing one while resisting arrest being made by city marshal while acting as deputy sheriff (Springfield, Mo., Court of Appeals: *City of Festus v. Kausler*, 77 S. W. 2d, 197).

Official Eligibility

Mayor held ineligible to fill vacancy on his ouster for corrupt election practice (Massachusetts Supreme Judicial Court: *Ross v. Crane*, 195 N. E. 884).

Statute authorizing appointment of police matron held not to impliedly disqualify women for chief of police post (Indiana Supreme Court: *Snowden v. Stackert*, 193 N. E. 586).

Pensions

Statute reducing firemen's pensions upheld (Florida Supreme Court: *State v. City of Tampa*, 159 So. 292).

Police Measures

Blanket ordinance making misdemeanors against state also misdemeanors against town held not invalid as being retroactive only (Mississippi Supreme Court: *Basham v. Town of Sebastopol*, 159 So. 947).

Ordinance forbidding giving or handing of "bills of paper" or other advertising matter to any person in the streets held void for indefiniteness and unreasonableness (Texas Court of Criminal Appeals: *Ex parte Pierce*, 75 S. W. 2d, 264).

Ordinance if prohibiting "walkathons," etc., held invalid as conflicting with statute regulating such amusements (Michigan Supreme Court: *National Amusement Co. v. Johnson*, 259 N. W. 342). But ordinance forbidding endurance contests lasting longer than 24 hours was upheld (Alabama Supreme Court: *City of Birmingham v. Leo A. Seltzer, Inc.*, 159 So. 203).

Purchases

Commissioners held empowered to buy coal despite lower bids if satisfied that coal bought would produce better results (Pennsylvania, Court of Common Pleas, Lehigh County: *Auman v. County of Lehigh*, 26 Pa. Munic. Law Rep. 51).

City held liable for floodlights ordered for parks by park board on informal authority (Arkansas Supreme Court: *City of Fort Smith v. Giant Manufacturing Co.*, 79 S. W. 2d, 440).

Salaries

Economic conditions held not to avoid unconstitutionality of statute ratifying reduction of municipal salaries (Massachusetts Supreme Judicial Court: *Campbell v. City of Boston*, 195 N. E. 802).

Sewers

City held liable for weakening support of abutting property in construction of sewer by contractor (Kentucky Court of Appeals: *City of Covington v. Parsons*, 79 S. W. 2d, 353).

Sewer assessment held not subject to credit for value of private sewer not incorporated into improvement (Kentucky Court of Appeals: *W. T. Congleton Co. v. Turner*, 77 S. W. 2d, 23).

Property prospectively benefited by sewer improvement, although presently served by septic tanks, held assessable (Iowa Supreme Court: *Brenton v. City of Des Moines*, 257 N. W. 794).

Special Assessments

Paving-widening improvement held local improvement supporting special assessments although street is major trafficway (Oklahoma Supreme Court: *Harrington v. City of Tulsa*, 39 Pac. 2d, 120).

Drainage assessment bonds, being general obligations of city, held invalid as creating a "debt" within constitutional limitation (Washington Supreme Court: *State v. City of Sunnyside*, 43 Pac. 2d, 621).

Special assessments held not vitiated by city clerk's failure to certify assessments to, and file warrant with, collector as required by statute (Arkansas Supreme Court: *Martin v. Board of Commissioners of Street Improvement District No. 5 of Stuttgart*, 81 S. W. 2d, 414).

Street Improvements

City held entitled to show as offset in abutter's action for damages for lowering of street grade that increased traffic had benefited abutter's property (Georgia Court of Appeals: *Stansell & Rape Bros. v. City of McDonough*, 177 S. E. 749).

Street Railroads

State railroad commission held empowered to order substitution of adequate bus service for street railway service by company (South Carolina Supreme Court: *City of Columbia v. Tatum*, 177 S. E. 541).

Taxation

Missouri fourth-class city held not subject to mandamus to compel levy of tax in excess of statutory rate to pay personal injury judgment (Missouri Supreme Court: *State v. City of Mound City*, 73 S. W. 2d, 1017).

Valuation for taxation of land at more than fair value and of improvements at from 25 to 30 per cent held invalid (Texas Court of Civil Appeals: *City of West University Place v. Home Mortgage Co.*, 72 S. W. 2d, 361).

Minimum fare ordinance upheld (Minnesota Supreme Court: *City of St. Paul v. Clark*, 259 N. W. 824).

Taxpayers' Suits

Taxpayer held not entitled to sue to recover for city excessive compensation received by City Manager, in absence of refusal by city's officers to sue (Kentucky Court of Appeals: *Wagner v. Wallingford*, 78 S. W. 2d, 326).

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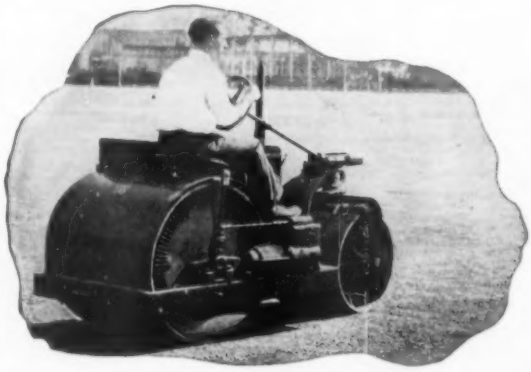

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Prices quoted do not include postage, unless so stated

Traffic

The Steadyflow Traffic System.—By Fritz Malcher. Harvard University Press, Cambridge, Mass. 1935. *ix+91 pp. 110 illustrations.* $1.00.

Again the Harvard University School of City Planning has rendered an important service to the city planning profession—and this time to the highway and traffic engineering professions also—by the publication of a new volume of the Harvard City Planning Studies. This latest addition, Volume IX of the series, presents the principles of the "steadyflow" system of traffic regulation by street and highway design, as worked out in meticulous detail and superior draftsmanship by the late Fritz Malcher.

Readers of THE AMERICAN CITY during the years 1929-1932 will recall the several articles by Mr. Malcher published in this magazine within that period. As explained in the preface to the Harvard book, Mr. Malcher's friends felt very strongly that the worth of the man and the value of his work demanded as consistent and complete a statement of his ideas as could be made, to take the place, as far as might be, of the comprehensive book which he had in mind at the time of his death.

While the first three chapters are based mainly on material which THE AMERICAN CITY had published, these studies are combined and coordinated in the book in a more permanent and accessible form than heretofore, and there are added many plans not elsewhere reproduced embodying proposed applications of the steadyflow principles to specific existing conditions in various cities. An appendix presents 25 detailed plans by Mr. Malcher for various types of intersection design.

Whether as an aid to the complete replanning of a city's traffic flow system, or to the re-design of a single intersection, this little book will save hundreds of times its $1.00 cost to many a city or state planning board or highway or traffic engineering department.

Fresh-Water Algae

The Fresh-Water Algae of the United States by Gilbert M. Smith, Professor of Botany, Stanford University. McGraw-Hill Book Co., Inc., New York. 1933. 716 *pp. Illustrated.* $6.00 *from* THE AMERICAN CITY.

Although this book bears a publication date three years old, it has only recently come to our attention and we hasten to tell water-works operators, officials and engineers about it, since it is a book most needed by the water-works profession. Primarily written for American botanists who, the author states, "have been dependent upon British and German treatises for information concerning the morphology and taxonomy of the fresh-water algae" for more than a quarter of a century, it is, however, of great value to the water-works man in identifying organisms encountered in ponds, lakes, reservoirs and streams. It is profusely illustrated with carefully drawn line sketches and is a welcome addition to any water-works library. While the author recognizes that it is difficult to draw the line between marine and fresh-water algae on the basis of the salinity of the water, he does exclude brackish-water algae as being essentially marine. The algae of the inland brine lakes are, however, included.

Hydrologic Data

Agreement on common standards and specifications for hydrologic data arrived at among representatives of different government agencies and prominent hydrologists outside of government service, is shown in a 45-page report entitled "Standards and Specifications for Hydrologic Data," made public last month by the National Resources Committee. The report was prepared by a Special Advisory Committee under the chairmanship of Thorndike Saville, Professor of Hydraulic and Sanitary Engineering, and Associate Dean, New York University. (Apply to National Resources Committee, Washington, D. C.)

Diesel Engines

Standard Practices.—By Diesel Engine Manufacturers Association; printed and distributed by Diesel Publications, Inc., 192 Lexington Ave., New York. 162 *pp.* $2.00.

This new statement of standard diesel practices is the helpful response to the continuous improvement and expanding use of the diesel engine, and is designed especially for owners and operators of heavy-duty, low- and medium-speed engines of sizes commonly found in stationary power plants, say 200 horsepower and larger. In addition to consideration of the technical features of the machine, there are chapters dealing with fuel-oil storage and handling, cooling water systems, and the preparation of both invitations for bids and detailed specifications. Here the prospective buyer will find described what he may expect from diesel engines, in terms of equipment and operating characteristics.

Electric Lighting

Results of Municipal Lighting Plants.—Record of 415 cities under municipal ownership, rates in effect 1934-35. Published by Burns & McDonnell Engineering Co., Kansas City, Mo. 182 *pp.* $1.00.

This is the fourth edition of this convenient compendium of electric rates, earnings, operating expenses, net profits, kwh production. The figures cover 50 more plants than last year. They show that Los Angeles, with a population of 1,238,000, owns 110,605 kw worth $83,893,941 and a debt of 30 million dollars, and a net operating income of nearly 4 millions. They show that Salisbury, Mo., with a population of 1,762, owns 340-kw in diesel-electrics worth $115,000 and a debt of $8,684 after 43 years' operation, and a net income of nearly 12 thousand dollars. As R. E. McDonnell says, these municipally owned light and power projects are "so varied in size and location as to be a good cross-section of what electricity costs in municipal plants over the entire country."

Regional Planning

"Regional Factors in National Planning and Development" is the title of the comprehensive report issued December, 1935, by the National Resources Committee in a paper-covered volume of 223 pages, with many map drawings. To meet problems of regional organizations for planning, construction and operation of projects and policies involving more than one state, recommendations are presented under the following general outline: state planning; establishment of regional planning commissions; encouragement of interstate compacts; use of Federal corporate authorities; advance planning; continuous national planning; permanent national development administration; regional development methods; and Federal administrative regional centralization. 50c. (Apply to Superintendent of Documents, Washington, D. C.)

Housing

In support of the Wagner bill for slum clearance and low-rent housing a pamphlet on "Municipal Housing" has been prepared by Helen Alfred, Secretary and Director of the National Public Housing Conference. It presents the background of this important measure, which in its original form proposes the creation of a Federal housing agency as a permanent and integral part of the Government structure, whose duty it shall be to finance and supervise programs of municipal housing authorities. The various provisions of the bill are analyzed as to their intent and their probable results if adopted. The author states that in successfully re-housing families that are now ill-housed, municipal housing is the only dependable tool: "When local communities are equipped with housing authorities of ability and integrity, have provided those agencies with adequate administrative funds, and see that local authorities qualify for housing loans and subsidies from the Federal Government, the first skirmish shall have been won." 38 pp. (Apply to the author, 112 E. 19th St., New York.)

Recovery

The Path to Prosperity.—By Gilbert M. Tucker. G. P. Putnam's Sons, New York. 1935. 312 *pp.* $2.50 *from* THE AMERICAN CITY.

The writer's thesis is that there are unchanging principles upon which we must build and laws to which we must conform, in social as well as in private life, if we are to achieve a real success and a lasting prosperity. The wide field covered is apparent from the chapter headings: Conditions Today; The Problem; Public Finances; Public Relief; The Farm Problem; Profits and Planning; Employment, Wages and Labor; Regulating Business; Money and Credit; National Dishonesty; Government and Law; The Purpose of Government; The Land Privilege; The Land Question; The Corporations; The "Utilities"; Taxation; Tariffs and Taxes; The Privilege of Inheritance; Privileges and Labor; A Program; The Prospect.

As a follower of Henry George, Mr. Tucker's chief reliance for the achievement and maintenance of permanent prosperity is in the abolition of privilege and in the adoption of land-value taxation as the chief or sole source of public revenues. "The collection of ground-rents which belong to the people of the country as a whole," he says, "is, strictly speaking, not taxation at all, but should such revenue prove insufficient, it would then be time enough to consider other measures. It is certainly only common sense to collect what in justice belongs to us, before we confiscate private property."

Child Welfare

"Facts About Juvenile Delinquency—Its Prevention and Treatment" is the title of Bureau Publication No. 215 of the Children's Bureau, U. S. Department of Labor, issued in 1935. It seeks to give, in non-technical outline and in easily available form, "something of the newer philosophy in regard to the whole problem of delinquency which has grown out of the studies and findings of the Delinquency Committee of the White House Conference on Child Health and Protection." Under Preventive Programs will be found enlightened discussion of: education of public opinion; assistance to parents in dealing with early behaviour problems; social work in the schools; community influences and leisure-time activities; and spirit of the community. The entire report is a storehouse of information and inspiration. 44 pp. 5c. (Apply to Superintendent of Documents, Washington, D. C.)

Public Funds

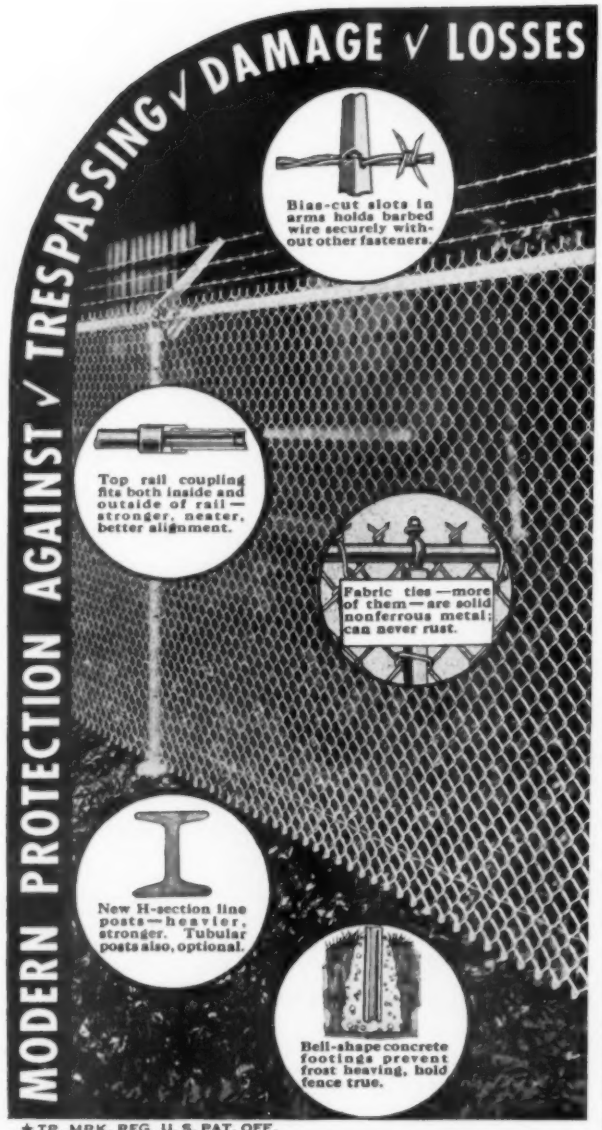
"The Security of Public Deposits," by Martin L. Faust, of the University of Missouri, is Publication No. 51 of the Public Administration Service, 850 E. 58th St., Chicago, Ill. It has just been published (1936). 45 pp. 50c. See page 48 of this issue.

Regional Development

In "New England Today," an impressive, well-executed quarto pamphlet of 48 photo offset pages, the New England Council gives, with interesting text and telling illustrations, a valuable account of itself—its origin, purposes, accomplishments. Conditions, influences and trends are presented as they affect or characterize the development of industry, agriculture, recreation, community expenditure and taxation in New England. The Council's work in research and publicity is set forth. The portion of the publication which presents "The Place and Its People," with descriptions and graphic display of its resources and facilities, is of much interest for study and reference. 50c. (Apply to the Council, Boston, Mass.)

Standards for Testing Materials

The American Society for Testing Materials has issued (January 1, 1936) its yearly "Index to A.S.T.M. Standards and Tentative Standards." Information is given on 794 standards and tentative standards. 160 pp. (Apply to the Society, 260 S. Broad St., Philadelphia, Pa.)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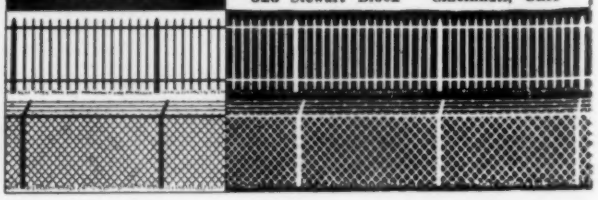

Water Supply and Service Charges

From the issues of THE AMERICAN CITY published during the year 1935, detailed water rates of 191 cities in the United States have been reprinted in a pamphlet of 53 photo offset pages. The price is $1.00. If purchased at the same time with the pamphlet issued in January, 1935, containing the water-rate reports published in the issues of THE AMERICAN CITY during 1934 and in The Municipal Index for 1934, totaling 237 cities (regular price $1.00), the two pamphlets may be obtained for $1.50.

Governmental Accounting

In a 12-page copyrighted pamphlet the American Institute of Accountants (135 Cedar St., New York) presents, under the title "Accounts of Governmental Bodies," recommendations to individual citizens for obtaining proper administration of the fiscal affairs of municipalities. This six-point plan has been prepared by the Institute's Special Committee on Governmental Accounting. The principles of its procedure are clearly explained and appeal to intelligent civic interest. (Apply to the Institute.)

Real Property Inventory and City Planning

The City Planning Board of Boston has published its "Report on Real Property Inventory for the City of Boston, 1934," in two volumes. Volume II is in limited edition, and its distribution is confined to libraries and reading rooms where it will be available for group use. It contains detailed information (565 pp. of tables, 1 folded map, 14 district maps, brief introduction) with regard to real property conditions in all sections of the city. Volume I contains 50 pp. of typewritten text, 12 folded maps, preface and introduction, and presents detailed information regarding the city as a whole, with abstracts of factual tables of the 14 districts into which the city was divided for study. The information given will be of use to those connected directly or indirectly with the building and construction industry and with real estate, as well as to students of civic and social problems, and to the marketing division of manufacturers and dealers in household equipment and appliances. (Apply to Miss E. M. Herlihy, Secretary, City Planning Board, 30 City Hall, Boston, Mass.)

Other Reports Received

ALBERTA.—Proceedings of Annual Convention of Union of Alberta Municipalities, June 27 and 28, 1935, Calgary. 80 pp.

ALBERT LEA, MINN.—Annual Report of City, 1935. Pocket size. 36 pp.

CHICAGO, ILL.—Annual Report, Department of Public Works, 1934. 441 pp.

HANOVER, PA.—"High Lights of Municipal Improvements from 1928 to 1935." 8 quarto pp.

HANOVER, PA.—Data on Municipal Water Works, the Sewer System, and other statistics. 8 quarto pp.

NEW YORK CITY.—Annual Report, Board of Water Supply, 1934. 86 pp. besides folding inserts.

PITTSBURGH, PA.—"Civic Pittsburgh—Facts and Figures About Your Business." 1935. Published and copyrighted by J. C. Slippy. 32 pp. 50c.

ST. LOUIS, MO.—Annual Report, Department of Streets and Sewers, 1934-35. 48 quarto pp.

Atlantic Deeper Waterways Association: Proceedings, Annual Convention, October 7-10, 1935. 285 pp.

CONVENTIONS—WHEN AND WHERE

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

FEBRUARY 12-14.—ATLANTIC CITY, N. J. (850)
Association of Highway Officials of North Atlantic States. Annual convention. (Hotel Ambassador.) Secretary-Treasurer, A. Lee Grover, Secretary, State Highway Commission, Trenton, N. J.

FEBRUARY 13-15.—SPOKANE, WASH. (800)
Pacific Northwest Regional Planning Commission. Conference. (Davenport Hotel.) Chairman, Marshall N. Dana, 220 Federal Court House, Portland, Ore.

FEBRUARY 14.—MOORESTOWN, N. J.
South Jersey Association of Water Superintendents. Regular meeting. Secretary, Walter Spencer, 2707 Bethel Avenue, Merchantsville, N. J.

FEBRUARY 18-20.—ANN ARBOR, MICH.
Conference on Highway Engineering—University of Michigan. Annual convention. Secretary, R. E. Morrison, University of Michigan, Ann Arbor.

FEBRUARY 25-27.—CHICAGO, ILL.
American Concrete Institute. Annual convention. (Palmer House.) Secretary, Harvey Whipple, 641 New Center Building, Detroit, Mich.

MARCH 19-20.—TRENTON, N. J.
New Jersey Sewage Works Association. Annual meeting. (Stacy-Trent Hotel.) Secretary, John R. Downes, Bound Brook, N. J.

MARCH 23-25.—LEXINGTON, KY.
American Water Works Association—Kentucky-Tennessee Section. Annual meeting. Executive-Secretary, F. C. Dugan, 532 West Main Street, Louisville, Ky.

MARCH 25-28.—LITTLE ROCK, ARK.
Southern Commercial Secretaries' Association. Annual meeting. Secretary-Treasurer, Stanley Draper, Manager, Chamber of Commerce, Oklahoma City, Okla.

MARCH 26-27.—OSWEGO, N. Y.
American Water Works Association—New York Section. Spring meeting. Secretary, R. K. Blanchard, 50 West 50th Street, New York.

MARCH 30-APRIL 3.—NEW YORK.
Building Officials' Conference. Annual convention. Secretary-Treasurer, William F. Hurd, Commissioner of Buildings, Indianapolis, Ind.

APRIL 1-3.—HAMILTON, ONT.
American Water Works Association—Canadian Section. Annual meeting. Secretary-Treasurer, Dr. A. E. Berry, Ontario Department of Health, Parliament Buildings, Toronto, 5, Ont.

APRIL 7-9.—LAFAYETTE, IND.
American Water Works Association—Indiana Section. Annual meeting. (Purdue University.) Secretary-Treasurer, J. A. Bruhn, Indianapolis Water Company, Box 855, Indianapolis, Ind.

APRIL 7-9.—SAVANNAH, GA.
American Water Works Association—Southeastern Section. Annual meeting. Secretary-Treasurer, W. H. Weir, 4 Capitol Square, S. W., Atlanta, Ga.

APRIL 9-10.—EVANSTON, ILL.
American Water Works Association—Illinois Section. Annual convention. W. D. Gerber, Room 57, Chemistry Building, Urbana, Ill.

APRIL 13-14.—WASHINGTON, D. C.
Conference of State and Territorial Health Officers with the U. S. Public Health Service. Annual conference. Address: Surgeon General, U. S. Public Health Service, Treasury Department, Washington, D. C.

APRIL 17-18.—BUTTE, MONT.
American Water Works Association—Montana Section. Annual meeting. Secretary, Herbert B. Foote, State Board of Health, Helena, Mont.

APRIL 23-24.—BOSTON, MASS.
Massachusetts Safety Conference. Annual convention. (Hotel Statler.) Secretary, Lewis E. MacBrayne, 6 Beacon Street, Boston, Mass.

APRIL 27-30.—WASHINGTON, D. C.
Chamber of Commerce of the United States of America. Annual meeting. Secretary, D. A. Skinner, 1615 H Street, N. W., Washington, D. C.

APRIL 27-28.—WASHINGTON, D. C.
National Rivers and Harbors Congress. Annual congress. Secretary, Fred D. Beneke, 708 Earle Building, Washington, D. C.

APRIL 27.—HARTFORD, CONN.
New England Sewage Works Association. Spring meeting. Secretary, F. W. Gilcreas, State Department of Health, New Scotland Avenue, Albany, N. Y.

MAY 7-8.—BIRMINGHAM, ALA.
Alabama League of Municipalities. Annual convention. Executive Secretary, Ed. E. Reid, Montgomery, Ala.

MAY 11-16.—RICHMOND, VA.
American Library Association. Annual conference. Secretary, Carl H. Milam, 520 North Michigan Avenue, Chicago, Ill.

MAY 11, WEEK OF.—ATLANTIC CITY, N. J.
National Fire Protection Association. Annual convention. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

MAY 14-16.—ABERDEEN, WASH.
American Water Works Association—Pacific Northwest Section. Annual meeting. Secretary, Ernest C. Willard, 720 Corbett Building, Portland, Ore.

MAY 14-15.—FREDERICK, MD.
Maryland-Delaware Water and Sewerage Association. Annual conference. (Francis Scott Key Hotel.) Secretary, A. W. Bohm, 2411 North Charles Street, Baltimore, Md.

MAY 20-21.—ASBURY PARK, N. J.
Eastern Safety Conference. Manager, Fred M. Rosseland, 24 Branford Place, Newark, N. J.

MAY 22-23.—ATLANTIC CITY, N. J.
American Public Welfare Association. Annual conference. Director, Fred K. Hoehler, 850 East 58th Street, Chicago, Ill.

MAY 24-30.—ATLANTIC CITY, N. J.
Community Chests and Councils, Inc. Annual meeting. Executive Vice-President, Allen T. Burns, 31st Floor, Commerce Building, New York.

MAY 24-30.—ATLANTIC CITY, N. J.
National Conference of Social Work. Annual conference. General Secretary, Howard R. Knight, 82 North High Street, Columbus, Ohio.

MAY 25-28.—NEW ORLEANS, LA.
National Association of Purchasing Agents. Annual convention. Secretary-Treasurer, G. A. Renard, 11 Park Place, New York.

JUNE 1.—PHILADELPHIA, PA.
Pennsylvania State Association of Township Commissioners. Annual convention. (Bellevue Stratford Hotel.) Secretary-Treasurer, H. A. Fritschman, Eagle and Darby Roads, Upper Darby, Pa.

JUNE 2-5.—ATLANTA, GA.
Smoke Prevention Association. Annual convention. Secretary, Frank A. Chambers, 1411 City Hall Square Building, Chicago, Ill.

JUNE 8-12.—LOS ANGELES, CALIF.
American Water Works Association. Annual convention. (Hotel Biltmore.) Secretary, Beekman C. Little, 29 West 39th Street, New York.

JUNE 15, WEEK OF.—VANCOUVER, B. C.
Canadian Public Health Association. Annual meeting. General Secretary, Dr. J. T. Phair, Spadina House, Toronto, Ont.

JUNE 22-26.—PASADENA, CALIF.
American Institute of Electrical Engineers. Annual summer convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

JUNE 23-25.—HARTFORD, CONN.
New England Association of Fire Chiefs. Annual convention. Secretary-Treasurer, John W. O'Hearn, 99 Main Street, Watertown, Mass.

JUNE 24-26.—STATE COLLEGE, PA.
Pennsylvania Sewage Works Association. Annual conference. Secretary, L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 26-27.—PITTSFIELD, MASS.
New England Association of Commercial Executives. Annual meeting. Secretary, Peter Foley, Norwich, Conn.

JUNE 26-28.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Annual convention. Secretary-Treasurer, I. M. Glace, 20 South 22d Street, Harrisburg, Pa.

AUGUST 6-7.—POUGHKEEPSIE, N. Y.
Eastern Association of Fire Chiefs. Annual convention. Secretary, Charles E. Clark, Box 217, Wayne, Pa.

SEPTEMBER 28-30.—TORONTO, ONT.
American Society of Municipal Engineers. International Association of Public Works Officials. Public Works Congress. Executive Director, Frank W. Herring, 850 East 58th Street, Chicago, Ill.

HAZARD ARMORTITE CABLE

Hazard Armortite Cable offers many advantages for street or park lighting. Its non-metallic armor of hard vulcanized tape affords ample protection against abrasion and other mechanical damage. Inpregnated wrappings make this cable waterproof. Because lead and metal sheaths are thus unnecessary, Armortite is light in weight, easier to handle and cheaper to lay, and is operated without excessive sheath losses, so common to steel-armored cables. Our booklet "Armored Underground Cable" is interesting to all City Engineers.

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HAZARD INSULATED WIRE WORKS
Division Of THE OKONITE COMPANY
WORKS: WILKES-BARRE, PA.

Marks the SPOT where INEFFICIENCY ENDS and ECONOMY BEGINS in STREET LIGHTING . . .

• Above Intersection shows a separate beam for each roadway. . . . Just one of the many ways Holophane shapes light to the street.

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Modernize, Economize with Holophane! Write
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The EDDY Hydrant

Eddy Fire Hydrants have many points that appeal to water-works men. For example:

A damaged valve can be replaced in a few minutes at slight expense.

Should the standpipe be broken, not a drop of water need be lost.

All hydrants are frost-proof.

These and many other points of excellence are thoroughly explained in our catalog, which it will pay you to study.

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Representatives
Jas. B. Clow & Sons, Chicago, Ill.
National Cast Iron Pipe Co., Birmingham, Ala.

NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Caterpillar Offers Stationary Diesel Engines

Expanding the range of power in its diesel engine line, Caterpillar Tractor Co., Peoria, Ill., has announced three new models, the largest being of V-type 8-cylinder design, to be produced solely as a stationary installation, this being the first time in its three years of industrial engine building that this company has manufactured a product exclusively for the stationary power user. Caterpillar now manufactures five sizes of diesel engines ranging from 44 to 160 maximum brake horsepower.

The new models are the D17000, V-type, 8-cylinder, 160-horsepower; the D6600, 3-cylinder, 60-horsepower, and the D4400, 4-cylinder, 44-horsepower. The D17000 is the outgrowth of a demand for increased power by users of large engines. To fill these requirements an engine of V-type design was chosen, and it is said to be well suited for such service as shovels, industrial locomotives, compressors and crushers.

The D17000 delivers 35 more horsepower than the present largest model, the D13000. The added power extends the service of this engine. In construction it will power 2- and 2¼-yard shovels and draglines. As a source of electric current, it will be offered as a unit with an 80-horsepower generator, an announcement of interest to the smaller cities which purchase diesel engines to power their municipal plants.

The D17000 is a true diesel engine with a 4-stroke cycle, valve-in-head and water-cooled, and features solid injection of fuel into pre-combustion chambers. The eight cylinders are in two groups of four, set at an angle of 60 degrees.

The D4400 industrial engine extends the other end of the Caterpillar line and is expected to find use in many fields where portable power is in demand. Considerably lighter in weight and having higher speeds than the four other diesels, it is adapted to powering ½- and ⅜-yard shovels, or a 20-kw generator.

New Series of 1936 Trucks

Featuring equalized load distribution, hydraulic brakes, unusual economy, and Amola steel springs, the Dodge Division of Chrysler Corporation, Detroit, Mich., has announced a new series of trucks and commercial cars for 1936. This new line will consist of the following chassis models: ½-, ¾-, 1-, 1½- (in two series), 2-, 3-, and 4-ton models. Special custom-built Airflow models also will be offered.

Among the important innovations marking this new line of Dodge trucks is the "fore-point" load distribution through which the load is shifted forward in relation to the axles. This insures greater stability, a minimum over-all length, more nearly equalized wear on brakes and tires and, in general, a more efficient hauling unit.

One of the major changes in the construction of the new models is the adoption of a strictly truck-type of frame on the ½-ton commercial car. This double drop frame is deeper in side rail cross-section and has five truck-type cross-members, including the rear engine support.

Amola steel, a recent metallurgical development of the Chrysler Corporation, which has high fatigue-resisting qualities, is used in the springs of the entire 1936 line of trucks, furnishing an additional factor of safety.

Hanna Made General Sales Manager for Union Metal

Early in January, 1936, D. B. Hanna became General Sales Manager of the Union Metal Manufacturing Co., with headquarters at Canton, Ohio. Mr. Hanna is in charge of sales activities and sales personnel, and will continue also as an officer of the American Concrete Corporation. W. A. Porterfield, as Vice-President of the company, is in charge of Sales Promotion and all activities related thereto. The Union Metal Manufacturing Co. is well known as maker of metal lamp standards and fluted steel pile shells.

Layne Organization Moves Chicago Offices

The Layne Organization, Layne & Bowler, Inc., Layne North Central Co., and Layne-Western Co., has moved its Chicago offices to Room 1164 Monadnock Block at 53 West Jackson Street, Chicago, Ill. The Layne organization manufactures Layne pumps and wells, and offers contracts for guaranteed well-water supplies under the slogan, "Water or No Pay."

New Circular Sludge Collector

A new sludge collector for use in circular centrally-fed settling tanks has been announced by the Link-Belt Co., Chicago, Ill., and Philadelphia, Pa. This Link-Belt Circuline sludge collector consists of a motor-propelled, centrally-pivoted, structural steel bridge carrying the sludge-collecting medium, and driven positively at the circumference. The collecting medium is essentially a Link-Belt Straightline collector employing two strands of Promal chain connected with scraper flights at suitable intervals, as has been used in rectangular tanks for many years by Link-Belt for handling sludge and industrial wastes.

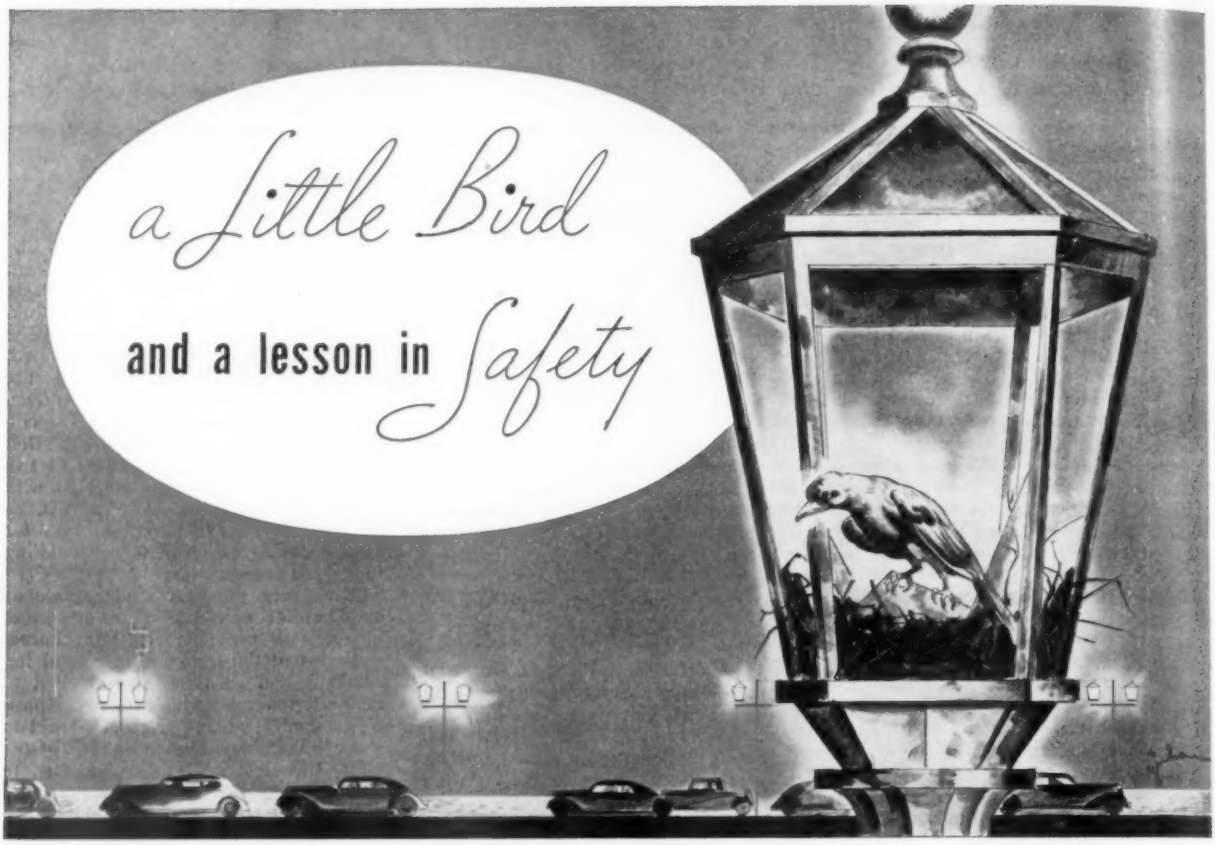
The squeegee on the sludge plate of the Circuline collector comes in direct contact with the floor, collecting practically all of the settled sludge, and immediately and positively conveying it to the sludge-collecting hopper. This positive method of sludge removal is said to assure a maximum sludge density.

The Circuline collector is reported to travel at approximately one-half the speed of other collectors used on round tanks. The purpose of this is to eliminate any danger of agitating the lighter solids, which settle at the periphery of the tank, and assuring maximum free settling.

Scum which floats on the surface of primary settling tanks is collected by a scum plate and conveyed by the top run of the collecting medium to the periphery of that tank. The scum plate near the periphery of the tank is hinged so that it will automatically deposit the collected scum in the scum trough.

As the Circuline sludge collector is designed for the positive removal of sludge, the floor of the circular tank need not be conical in shape. This reduces the depth and cost of settling-tank construction. The machine is designed to operate with equal effectiveness in a tank having either a conical or a flat bottom.

THE LINK-BELT CIRCULINE SLUDGE COLLECTOR FOR CENTRALLY FED SEWAGE SETTLING TANKS



A recent Sunday Supplement pictured a little bird who had built her nest in a convenient street light of a busy downtown metropolis. The glassware, shattered probably by a motor mishap, formed a perfect building site for this bird's new home.

Yes, there's a vital safety lesson in this humble picture . . . you've probably guessed it.

During the same year that this bird built its exclusive street light home more than 36,000 lives were lost in auto accidents. By conservative estimate more than 10,000 of these lives were sacrificed to inadequate street lighting. Broken glassware not promptly replaced, unlighted street lights, underlighted streets are some of the greatest hazards to human life and property in any community today.

And it's all so needless — for it is a known fact that the economic loss resulting from preventable night traffic accidents demands that a community *pay for good street lighting whether it gets it or not.*

Safer, saner driving is being urged by safety and service organizations throughout the country. In this same spirit, why not make streets safer for saner driving by establishing adequate street lighting?

Specify Westinghouse Glassware for your street lighting needs . . . a complete line for every need plus prompt efficient service.

Westinghouse, largest maker of complete lighting equipment, pledges its full cooperation in making this possible. The skilled staff of Westinghouse street lighting engineers are placed at the service of any municipality for consultation on any street lighting problem, for surveying existing needs and for recommending efficient, adequate equipment. For complete details, write Westinghouse Electric & Mfg. Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

WHEN YOU THINK OF *Lighting* THINK OF

WESTINGHOUSE 1886 1936 GOLDEN JUBILEE

Westinghouse

NEW MAGNETIC DEVICE IN USE FOR LOCATING HIDDEN PIPES

New Sensitive Detector for Missing Pipes

To facilitate the search for deeply-laid pipes, the General Electric Co., Schenectady, N. Y., has developed a new magnetic detector of great sensitivity and accuracy. The new detector has served satisfactorily in several emergencies so far, locating pipe lines laid more than forty years ago. They were found as far as 100 feet from their supposed locations, and some of them at 7-foot depths. The instrument indicated their presence within one diameter of the pipe. It is stated that the new instrument has 100 times the sensitivity of the ordinary magnetic needle.

The detector is a surveying compass with an adjustable bar magnet for reducing the control effects of the earth's magnetic field, thereby rendering the needle more susceptible to magnetic disturbances produced by a "missing" pipe. The bar magnet is adjustable for height and azimuth. Affixed to the compass box and turning with it are two radial fins of high permeability, low hysteresis magnetic material, serving as magnetic antennae. These fins are mounted on a crossbar and effect a substantial increase in sensitivity.

The detector is sensitive to iron or steel pipe lines having any magnetic bearing, and it may be used with or without electric current through the pipe, although the establishment of a small current makes for easier and more certain search. Non-magnetic pipes obviously require an electric current in conducting a search. Because of its great sensitivity, the instrument cannot be used near trolley lines.

The procedure is to establish the general bearing of the missing pipe from maps and ordinary compass directions. If possible, an electric current is then established between accessible hydrants and gates, using a switch and ammeter, with a lead wire at least 40 feet from the suspected pipe line. Dry cells or an ordinary automobile battery will suffice if the line has no break in electrical continuity, but in the latter case the detector functions without current. The detector is set up at a point known to be at one side of the pipe line, with the compass box turned to have the fins at right angles to the line. The bar magnet is adjusted to give appropriate sensitivity and also to direct the needle to have the same general bearing as the line. This adjustment is held throughout the search. In shifting stations with the detector, the compass box is turned so that the needle takes the same scale position with no current in the pipe. A curve is then plotted showing changes in current indication as the detector is transferred to convenient stations across the pipe line. The pipe is found directly below the peak in the curve.

When the true bearing of the pipe line is found by striking two or more courses of detector travel, then the actual depth below the detector can be readily discovered. This is done by moving the instrument over to the distant return wire, giving the wire the same bearing as that taken by the pipe line, and suspending the wire over the detector at a height to duplicate the peak indications of the search curve. The distance between the wire and the compass box then equals the depth of the pipe below the compass box.

Westinghouse Celebrates Golden Anniversary

On January 8, 1936, the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., began the celebration of its Golden Anniversary year. The headquarters Anniversary Meeting in Pittsburgh broadcast throughout the world featured the fiftieth anniversary of the incorporation of the company on January 8, 1886. It began operations in the following March in a small factory building located in downtown Pittsburgh. Its first payroll contained the names of 200 employees. Now, fifty years later, its various plants are 19 in number; in normal years it employs more than 40,000 people; its annual sales amount to about $180,000,000 and it maintains sales organizations all over the world. Its first catalog listed thirteen items. Now it contains hundreds of thousands of items covering almost every modern product for electrical service and other equipment used as accessories to electrical equipment.

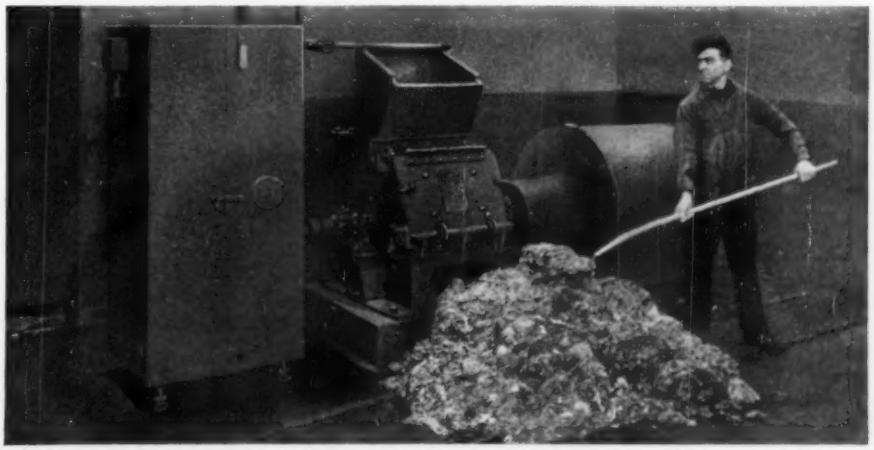
Davis Made Manager

R. R. Davis, formerly Assistant Manager of the Advertising Department of Westinghouse Electric & Manufacturing Co., at East Pittsburgh, Pa., will succeed Ralph Leavenworth, who has resigned as Manager. Mr. Leavenworth will join Fuller & Smith & Ross, Cleveland, Ohio, advertising agency which handles the Westinghouse account.

Kinney Moves Office for Southwest District

The Kinney Manufacturing Co., of Boston, Mass., has closed its office in the Finance Building, Kansas City, Mo., transferring its activities to 710 Santa Fe Building, Dallas, Texas. This office, like the former Kansas City office, is under the management of H. G. Saunders, who has charge of Kinney sales for distributors, pumps and clutches for the states of Louisiana, Texas, Arkansas, Oklahoma, Missouri, Kansas, Colorado, Nebraska, and New Mexico.

Grinding Garbage for Water Disposal



THIS JEFFREY GRINDER IS THE FIRST MACHINE USED FOR THE REDUCTION OF SEWAGE SCREENING. IT WAS INSTALLED BY THE CITY OF BALTIMORE IN 1926 AND IS STILL IN USE

Jeffrey grinders are of the swing hammer type, watertight, with specially designed hammers and shred bars for the reduction of sewage screenings to a fineness that will readily pass the pumps

INSIST ON GOOD STREET-LIGHTING GLASSWARE

ONLY CAREFUL MANUFACTURING CAN GIVE STRONG GLASSWARE

DO YOU fully realize the importance of strong glassware in keeping down the cost of street lighting? Globes must stand up under rain, sleet, snow, wind, heat, cold—under handling and shock. Cheap glassware can be a very expensive item. When the man responsible for your street-lighting maintenance suggests Gleason-Tiebout, back him up; he knows good glassware.

A fine-appearing ornamental globe—Gleason-Tiebout No. 118 with canopy

Strength in glassware is not something that can be seen on the surface—it is something built into the globe. Back of it is careful manufacturing: careful selection and testing of materials, properly designed and built molds, skilled craftsmanship, scientific annealing. To be sure of strong glassware, you must choose carefully the manufacturer who makes it.

Gleason-Tiebout glassware is made to meet the exacting specifications of General Electric engineers. These engineers will be glad to assist you in planning installations that will meet every requirement.

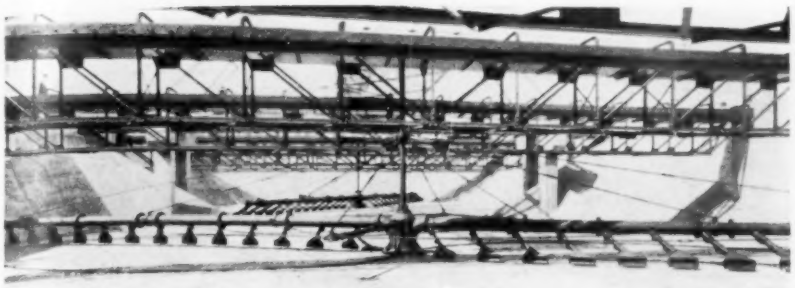
BETTER LIGHT BETTER SIGHT

GLEASON-TIEBOUT GLASS COMPANY

GT-36

99 COMMERCIAL STREET, BROOKLYN, N. Y.

When you write for that catalog, kindly mention THE AMERICAN CITY



VIEW OF THE TOW-BRO CLARIFIER FROM THE FLOOR OF THE FINAL SETTLING TANKS AT THE MILWAUKEE SEWAGE-TREATMENT PLANT
The horizontal tubular arms, the collection nozzles, as well as the central manifold and rod guys, are of aluminum, painted with a bitumastic paint

Aluminum in Sewage Works

Aluminum celebrates the fiftieth anniversary of its commercial availability this month. Although once considered a precious metal, it is today classed among the common metals as a result of Charles Martin Hall's discovery on February 23, 1886, of a process for producing it economically.

The use of aluminum has widened materially in the past fifty years. Through the development of alloys and heat-treatment processes, the metal is now serving the world in such diversified applications as precision instruments, brewing equipment, dragline booms and buckets, shovel dipper, furniture and streamlined trains.

Municipalities have benefited considerably by Hall's discovery, for aluminum is used in countless numbers of applications. In the building field, for instance, are found aluminum spandrels, roofs, gutters, downspouts, fascia, railings, doors and door jambs, mail chutes, elevator cabs, windows and sills, store fronts and skylights.

Street-lighting standards are made of aluminum, as are many reflectors for highway lights. Highway markers and bridge railings are of aluminum, while the highway departments of 27 states have standardized on aluminum paint because of its protective and visual qualities.

In the field of sewage treatment, aluminum has also identified itself. The Easterly Plant, at Cleveland, serves as a good example to show the number of uses to which aluminum can be put in the problem of sewage disposal. This plant, using the activated sludge process, is now under construction. When completed, it will be one of the most modern in the United States. Aluminum alloys in the form of sheet, plate, rolled and structural shapes, rod, bar, castings, extruded molding and drawn tubing, will be used for certain process equipment and the architectural treatment of various structures. More than 150,000 pounds of aluminum will be used in the 1,800 diffuser plate containers.

All the electrical conduit in the completed plant will be of aluminum, as will the angles, channels, plate, bar and rod for the floor gratings, walkways and sidewalk doors. There will be aluminum pipe railings for stairways, narrow walkways and pits, and aluminum extruded sections and shapes will be used for the sash, hollow metal doors and trim. Floodlights, lighting fixtures, hardware, skylights, insect screen frames, special laboratory equipment, office chairs and other furnishings will be of aluminum.

Other disposal plants already using aluminum include those at the Westerly Plant, Cleveland, and Springfield, Ohio; Gastonia and Charlotte, N. C.; Chattanooga, Tenn.; Milwaukee, Wis.; Indianapolis, Sunnydale, Bloomington, Butlerville, Michigan City and Richmond, Ind.; Jackson and Ann Arbor, Mich.; Iowa City, Sac City, and Cedar Rapids, Iowa; Fulton, Mo.; and Washington, D. C.

Stewart Celebrates Golden Anniversary

Early in 1886, R. C. Stewart and his brother, W. A. Stewart, now deceased, established the Stewart Iron Works Co., for the manufacture of iron and wire products. Their first business was established in Wichita, Kans., but was moved in 1894 to Cincinnati, Ohio.

The business outgrew its larger quarters, and in 1903 a new site was selected in Covington, Ky., opposite Cincinnati. The present plant, with 350,000 square feet of floor space, is equipped with all modern machinery, jigs, and dies for fabricating bar, shape and plate work of any size and cold working, forging, welding, etc. The Stewart Iron Works Co. has been one of the leaders in the fence industry and is said to be the world's largest builder of steel picket fencing. This company has also executed a number of jail and prison contracts, the most recent being for the replacement of all prison work at the United States Penitentiary, Alcatraz Island, Calif. At the present time, the company is installing all prison equipment and cells for the Tatnall County Jail at Reidsville, Ga.

Processed Rock Asphalt and Artificial Mixtures

The term "rock asphalt" is one that has been applied for many years to a natural rock whose particles are coated with asphalt by nature. It occurs in two general classes, one having as its base aggregate sandstone, and the other limestone. There are, however, deposits containing a mixture of standstone and limestone. The natural rock, coated with natural asphalt, makes a paving material quite different from any artificial mixtures. Even though there may be insufficient asphalt in the natural rock to bind the particles in a pavement, the natural coating of the mineral aggregate with asphalt makes it easy to coat the aggregate grains with additional asphalt because of the natural priming of the grains.

When additional asphalt is used with the already primed rock, whether of sandstone or limestone formation, the term "processed rock asphalt" is usually applied to the mixture. This processed rock asphalt departs from the natural material only in proportion to the amount of manufactured asphalt used. Inasmuch as this is usually very small, the processed material frequently differs very little from the natural product.

A. H. Hinkle, Director, Kentucky Rock Asphalt Institute, Louisville, Ky., states: "The superior merits of rock asphalt, generally recognized now by most highway engineers throughout the country, are being capitalized on by certain unethical manufacturers in applying the term to other purely artificial mixtures. Thus, the new highway officials, inexperienced in road materials, are misled by the use of the term 'rock asphalt.' It is believed that this practice of applying the term rock asphalt to these artificial mixtures should be frowned upon, as it is generally only intended to deceive the unsuspecting public and inexperienced official, and can serve no good purpose.

"The fact that some modifying term is attached to the term 'rock asphalt,' frequently a copyrighted term applying to a patented mixture, is still further reason for discouraging the use of the term 'rock asphalt' in connection with purely

Data on Steel Pipe

The National Tube Co., Pittsburgh, Pa., has issued a 68-page spiral-bound bulletin, No. 21, describing the use of National steel pipe for underground water lines. The bulletin is well illustrated and contains discussions several pages in length on the general features of steel pipe, a discussion of the corrosion of underground water lines, diagrams and text on the mechanical features of steel pipe, including the methods of making various kinds of joints with end couplings and welded connections; a Technical Section dealing with internal fluid pressures, collapsing pressure, properties of water, water pressure, flow of water, measurement of flowing water, water power, convenient equivalents, physical properties and specifications for National pipe, and weights and dimensions of different types of National steel pipe.

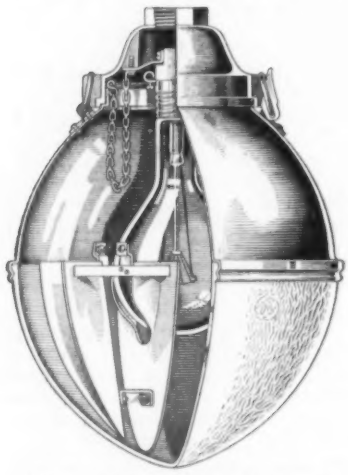
Copies of this bulletin may be secured by readers interested in steel pipe installations by writing to the National Tube Co., Pittsburgh, Pa., and mentioning THE AMERICAN CITY.

Read and Use
The Municipal Index

Voters judge your administration by the good it does

Announcing a New Luminaire that Will Make Street Lighting a Better Investment for Your City

56 to 66 per cent more light on the street



Puts more light on the street
Shields motorists and homes from objectionable glare

STREET lighting always has been and always will be one of the best investments a city can make. It saves lives, it prevents accidents, it stimulates business, it satisfies citizens. But the value of street lighting depends on the light delivered to the street.

Here is a new street light, that delivers 56 to 66 per cent more light on the street than the *best* comparable luminaire of older design. Every municipal official owes it to his administration and to his citizens to investigate this new luminaire. Your power company can tell you about it — every G-E salesman knows about it — the coupon will bring you information about it. Find out today—and add this street light to a constructive five- or ten-year plan of making your city a safer, better place in which to live. General Electric, Schenectady, N. Y.

General Electric, Dept. 6—201
Schenectady, N. Y.

Please send me full information on your new Form 79 street-lighting luminaire (Publication GEA-2276).

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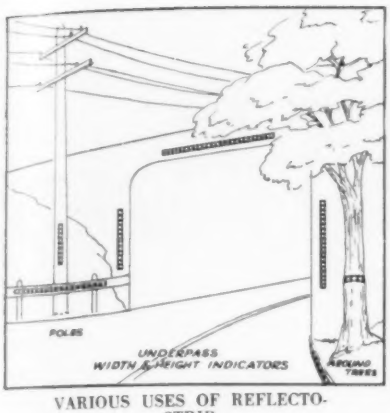


VARIOUS USES OF REFLECTO-STRIP

Button Lighting on Highways as a Safety Measure

On most roads there are many places, such as hazardous curves, underpasses, bridges with piers and abutments, the bases of lights, whether the light is of the stationary or flashing type, as well as poles and trees where strips of reflector buttons properly placed can prove of inestimable service as a safety measure. One eastern railway system is planning to amplify its traffic warning signals at grade crossings with strips of reflector buttons. There are also stretches of little-traveled roads on which the cost of direct overhead lighting would not be warranted, yet which would be well served by reflective devices as a safeguard for night traffic.

Bridges that are brightly illuminated nevertheless use strips of reflector buttons furnished by the Traffic Equipment Corporation, 557 West 42nd Street, New York. The recent tragedies of the Hopewell Bridge over the James River in Virginia and on the highway bridge near Huntington, Ind., serve as a severe reminder that bridges and their roadways should have adequate lighting at night by both direct and reflective units.

Owen Joins Nichols Engineering and Research Corp.

Mark B. Owen, formerly Superintendent, Department of Public Works and Engineering, Dearborn, Mich., has been elected Vice-President of the Nichols Engineering and Research Corporation, New York. He has been responsible in his public office for the inauguration of many new ideas in public works administration, construction, maintenance and operation, and is President of the International Association of Public Works Officials. As a member of the American Society of Testing Materials, he organized and established the most complete and up-to-date municipal physical testing laboratory of any municipality in Michigan, with the exception of Detroit. He organized the present Department of Forestry in Dearborn. He was responsible for the preparation of the existing building and plumbing codes of that city, which are among the most modern in the country, and after which the present Michigan State Code is patterned.

The Nichols Engineering and Research Corporation is headed by C. W. Nichols, capitalist, and director of numerous large corporations. The company has been acquired by Mr. Nichols from the Phelps Dodge Corporation through the acquisition of a majority stock interest.

New Appointments for Carnegie-Illinois

The Carnegie-Illinois Steel Corporation, Carnegie Building, Pittsburgh, Pa., has announced the following appointments in the Sales Department, effective as of January 1, 1936: C. R. Moffatt, Advertising Manager, and G. Reed Schreiner, Assistant Advertising Manager. Both of these men will operate from the Pittsburgh office.

Central Foundry Moves Branch Office

Central Foundry Company, 420 Lexington Avenue, New York, has announced the removal of its Pacific Coast sales office from San Francisco to 278 Fourth Street, Oakland, Calif. John Ponsaing, District Sales Manager, E. A. Keithley and K. P. Hughes, sales representatives for the company, will make their headquarters at this new office.

Iron Paving on Exhibition at Road Show

One of the new developments exhibited at the Road Show in Cleveland last month was the Tri-Pedal unit system of iron paving, introduced by the Interlake Iron Co., 332 South Michigan Avenue, Chicago, Ill. This system embodies the fundamental principle of three-point support in each iron unit forming the paving, to provide rigidity. This type of paving is formed of hollow triangular iron tiles, 12 inches on the side by 1½ inches high, which are easily and quickly laid, and as readily taken up and relaid without damage, facilitating underground renewals and repairs. The tread design of the tiles provides an anti-skid surface for all kinds of traffic and sure footing for pedestrians in all weather.

The manufacturer claims for this type of paving the feature of permanence, as evidenced by municipal castings which remain undamaged by traffic while the surrounding materials disintegrate; that tire suction, a major source of noise, is eliminated; and that water and slush drain off more readily than from standard types of pavement.

Pneumatic Conveying of Water-Works Chemicals

There are many advantages in selecting a pneumatic conveying system for handling large volumes of water-works chemicals. Its flexibility permits installation in almost any space, and the conveying line, which is a pipe of rather small diameter, can be installed to meet almost any layout and construction of building. It can be carried overhead or underground, through a building or across a street. Its flexibility solves many problems where material handling was not fully taken into consideration at the time the plant was designed or where changes were made later.

The Dracco pneumatic conveying system, made by the Dracco Corp., Harvard Avenue and East 116th Street, Cleveland, Ohio, definitely controls dust when transporting powdered material, gives continuous automatic operation, has a low maintenance cost, is labor saving, and has improved working conditions, and the materials cost less because they are received in bulk. The cost of packaging is saved, there is no loss of material in handling, no contamination and no interference with existing machinery. The principle of the Dracco pneumatic conveying system is to induce through a pipe line an air flow of sufficient velocity to support the particles of material which are carried into the end of the line by the inrush of atmospheric air. At the receiving station, the great reduction in velocity precipitates most of the particles, and the remaining fines are recovered in the filter equipment, while the conveying air is exhausted to the atmosphere through the vacuum pump.

Parking Meters in Miami, Fla.

Miami, Florida, is the latest city to join the increasing ranks of the Park-O-Meter movement. Contracts have just been signed by Dual Parking Meter Co., Commerce Exchange Building, Oklahoma City, Okla., for 400 Park-O-Meters, which will be delivered and installed in Miami immediately. With their installation, these meters will be in operation in five cities; Oklahoma City, Dallas, St. Petersburg, and El Paso already having installations.

In Dallas, Texas, during the month of December, 1935, 1,000 Park-O-Meters collected $10,544.85, in addition to solving that city's once perplexing parking problem. Similar reports come from the other installations, making the manufacturers entirely optimistic.

K. D. Mann Promoted

Truscon Steel Co., Youngstown, Ohio, has announced the appointment of Kenneth D. Mann as Executive Vice-President. Mr. Mann formerly was Southern District Sales Manager of Republic Steel Corporation, at Birmingham, Ala.

Water Rates and Service Charges

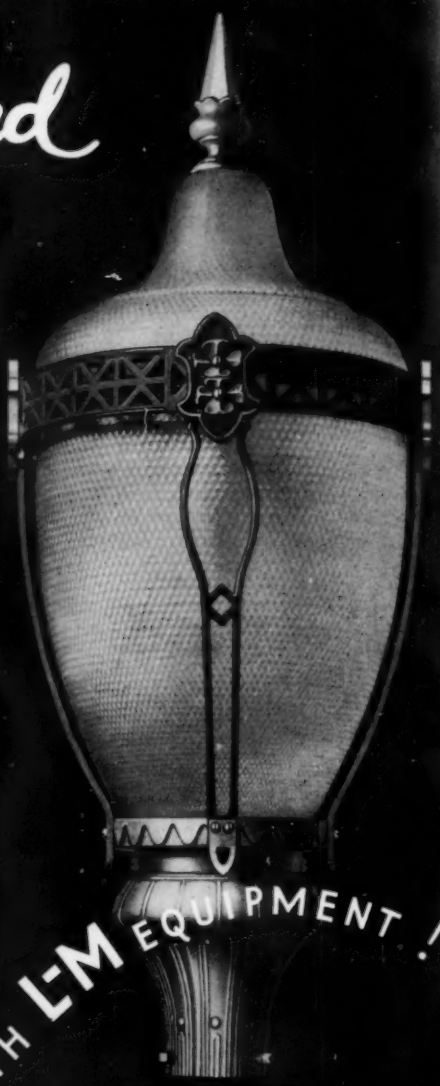
Two pamphlets of water rates, service charges, installation charges, hydrant rentals and sprinkler costs have now been published and may be secured postpaid from THE AMERICAN CITY, 470 Fourth Avenue, New York. The pamphlets are $1.00 each, or the two together for $1.50. There is no duplication in reports in the two pamphlets, dated January, 1935, and January, 1936.

Everything you need in street lighting

No matter whether you plan on installing a complete Whiteway system or modernizing your present installation, you will find everything you need in the L-M line.

L-M Street Lighting Equipment includes an extensive line of cast iron, pressed steel, concrete and wood Standards, a large variety of Luminaires, mounting Brackets, Transformers and all other Accessories required by the job.

Consult the L-M Catalog and call in the L-M Illuminating Engineer.



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The STATE SR.

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Outdoor Lighting

A Section of *The American City*
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Lighter Streets at Lighter Costs in New York

By MAURICE P. DAVIDSON
Commissioner of Water Supply, Gas and Electricity, City of New York

NEW YORK CITY has the quintuple distinction in the street-lighting field of (1) having obtained a perfectly understandable and much more economical rate than heretofore from the private utilities, (2) maintaining its lighting at par throughout the depression, (3) being the most active city in the country in the wholesale revision of its system, (4) possessing an incentive to still further improvement through the assimilation of all street-lighting equipment, and (5) looking forward to carrying through possibly epoch-making installations along the 50 miles of highways leading to the site of the World's Fair in 1939.

New Contract Saves $700,000

The street-lighting situation in the city of New York during the last two years has undergone very definite changes in contractural relationship between the private utility companies and the city, and this also applies to the service rendered by the various companies. Indeed, the principle involved in the radical revision of contracts between the city and private utility companies for all light and power requirements is even more important than the tremendous savings effected thereby, which are in excess of $2,000,000 per annum. The saving on street lighting alone is estimated to amount to $700,000, or 12 per cent. For more than a generation the service of street lighting has been supplied by private utilities on a unit basis and the city was in ignorance as to the factors which entered into the cost.

MAST-ARM STANDARD FOR WIDE STREETS; GOOSENECK FOR NARROWER ONES

Last year we broke down the bids so as to ascertain these factors and now the contracts for lighting streets, parks and public places, together with traffic signals and fire-alarm lighting units for 1936, are divided into five parts, as follows:

1. Electrical energy.
2. Rental of company equipment and maintenance of company-owned control, other than time switches located in the base of posts. (A large portion of the street lighting is operated in underground network systems. For controlling the street-lighting lamps we have adopted the use of individual astronomical dial time switches of a special design to fit in base of the cast-iron lighting standards.)
3. Maintenance.
4. Installation of the lighting equipment furnished by the city.
5. Furnishing and installing lighting equipment.

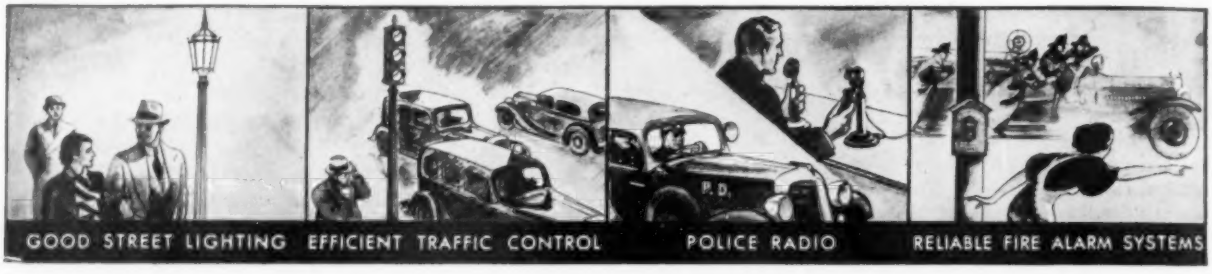
All new lighting equipment covered in parts 4 and 5, when installed, becomes the property of the city. The whole plan, in fact, permits the city eventually to own and operate all street-lighting equipment, with the utilities furnishing current and servicing the maintenance if required. Such servicing, however, may be performed by the city or a contractor.

The new contract requires the city to furnish and install all lighting equipment such as posts, foundations, lumi-

DAY AND NIGHT WITH THE NEW LIGHTING ON SEVENTH AVENUE, BROOKLYN, N. Y., LOOKING NORTH FROM 58th STREET

This

or This?



You pay for Public Safety

whether you get it or not!

Add these up. America's annual cost of traffic accidents, $2,500,000,000! Burglary and theft, $250,000,000! Tremendous fire losses! . . . Against these balance the relatively insignificant sums now spent for *Public Safety* equipment . . . better street lighting, police radio, efficient traffic control, efficient fire alarm systems. Does it pay? Let's see. Better street lighting alone could *save* an estimated $275,000,000 — many times the cost of the equipment . . . These facts apply, on a smaller scale, to your own community. Worth investigating? Graybar can help you with unbiased advice . . . dependable equipment. Write us — or call your nearby Graybar house for information on all types of Public Safety electrical equipment.

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Mention THE AMERICAN CITY—it helps.

THE NEW LUMINAIRE

naires, and control equipment for underground multiple installations, and the brackets and luminaires for overhead installations. Along all streets and highways the street-lighting equipment is installed by the city, and service is supplied to the lighting unit by the utility. In the case of all parks, however, the utility furnishes service to a given point near the park entrance, and the city furnishes and installs all lighting in the parks and public parkways, including conduit, conductors, poles, luminaires, controls, etc., for the complete lighting system. Incidentally, there are in the parks of New York City, in addition to many modern units with brackets and goosenecks, some 6,000 upright posts designed by Henry Bacon of Lincoln Memorial fame.

Throughout the five boroughs we now have 132,123 street and park lighting units along 4,026.52 miles of existing lighting. Total consumption in 1935 amounted to 138,000,000 kwh, or an average of 1,045 kwh per lamp. We pay the utilities 2 cents per kwh. The 1936 budget allowance is $2,910,000 for street lighting, and includes fire-alarm and traffic lights. Lamps are 100 to 1,200 watts.

In addition to the cost of the energy, the city pays rental for company equipment and for the maintenance of this equipment about $2,084,000.

The third item of operating cost is for the company's maintenance of city-owned equipment, $809,000 in 1936.

Thus the total operating cost of our street-lighting system last year was $5,803,000. The rates paid for maintenance of lighting units vary according to the ownership of all or part of the equipment.

City-wide Installation

The city was long desirous of obtaining a new type of luminaire that would deflect the wasted skyward light away from upstairs' windows and direct it down to the pavement, thus increasing the useful light from the lamp. Such a luminaire would not only be considerably more efficient and consequently more economical than those in use, but would be a distinct benefaction to our citizens, most of whom drive and all of whom sleep. It was therefore with a great deal of satisfaction that we adopted, after two years of experimentation, a design of luminaire worked out by General Electric engineers under the direction of C. A. B. Halvorson, Consulting Engineer, Lighting.

The efficiency of this luminaire is indicated by the ascertained fact that at 15 feet it doubles the amount of light on the pavement, while at 75 feet, or approximately in the center of the block or midway between two units, there is still 50 per cent more light than furnished by the older luminaires. This new luminaire should meet with the approval of the motor-vehicle driver, because it greatly reduces glare, as clearly shown by the photographs on the front cover of this issue of THE AMERICAN CITY.

The luminaire is 17½ inches long by 13 inches in diameter. The upper half is the reflector of Alzak-finish aluminum. The lower half is the ripple-glass globe made by the Gleason-Tiebout Glass Co., that is sealed into the reflector at the equator. Thus the housing and the lamp are dust-, bug- and moisture-proof. The luminaire will be opened for cleaning once a year instead of every four or five weeks as now. A 6,000-hour gas-filled incandescent lamp is being installed for use in all street-lighting and fire-alarm units, and we have arranged for group replacement once a year at the expiration of 4,050 hours burning. This lamp is in an experimental stage. For traffic signals 2,000-hour lamps are used.

26 Major Projects This Year

The following major projects are scheduled for completion during 1936, and it is proposed to install lighting units equipped with the new luminaires:

MANHATTAN—Henry Hudson Parkway, vicinity of Dyckman St. Bridge and approaches in the Bronx; East River Parkway, 94 to 122 Sts.; Miller Highway, 46 to 59 and 72 to 79 Sts.;

THE BRONX—Triboro Bridge approach, also in Queens; Crotona Park; Pelham Bay, St. Mary's, Franz Sigel Parks.

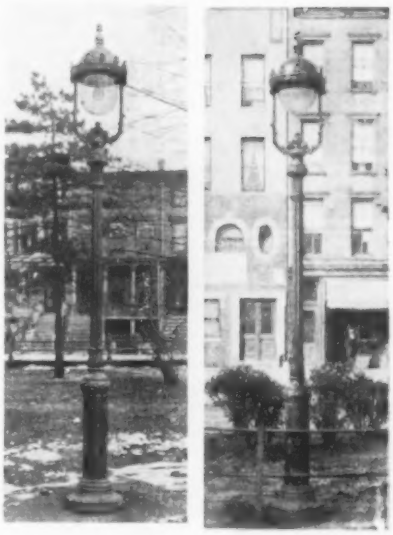
BROOKLYN—7th Ave. network; Shore Road network; Red Hook State Barge Canal; Brower, Seaside, Tompkins Parks;

QUEENS—Grand Central Parkway Extension South Service Roadway and Main Roadway; Union Turnpike, Vleigh Road to Nassau County; Woodhaven Boulevard from Queens Boulevard to Forest Park; Queens Boulevard, 68 St. to Union Turnpike; Baisley Pond Park; Bowne Park; Kissena Park; Horace Harding Boulevard from Queens Boulevard to Strong's Causeway.

RICHMOND—Barrett Park.

Approximately $1,250,000 worth of additional equipment will be required for new lighting in 1936. Contracts for nearly $400,000 worth of posts, poles, luminaires, brackets and time switches were awarded January 18.

The convenience of this new lighting to householders and tenants and to drivers has been mentioned. Its importance from a safety point of view will, of course, be obvious and should measurably contribute to the reduction of accidents, which have already been on the decline in this city for several years. In this connection, it may be stated in conclusion that along with our strenuous street-lighting program will go the installation of 130 fire-alarm lighting units and 2,000 traffic signals, all to be installed this year.



ACORN FITS ANY STEM

Adapted to one of New York's 6,000 park posts dated 1908—the acorn at right

Effective Lighting, or 10,000 Lives

THE toll of automobile fatalities has shocked the public. Straighter roads, slower speeds and punishment of traffic violators are suggested remedies, but none of these reach the cause of at least half of the traffic accidents.

Insurance statistics show that one-half of the automobile accidents occur at night at a time when traffic is one-quarter that of the daytime volume and that the ratio of night fatalities is rapidly mounting out of all proportion to the volume of traffic. These statistics also show that 69 per cent of those killed are pedestrians.

This was recently brought home to me in a painfully intimate way. An elder brother was killed by a "hit and run" driver last month. The accident occurred at night, and evidence at the inquest disclosed that my brother was found lying in a "dark part of the roadway where the light from the street lamps was obscured by trees.". . .

At a conservative estimate, fully one-half of the last year's night fatalities on streets and highways would have been prevented and 10,000 lives would have been saved by the installation of effective street and highway lighting. . . .

L. A. S. WOOD,
President, Illuminating Engineering Society,
in January *Transactions*.

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